66 Vol. X, No. 10 October, 1934

THE JOHN CRERAR OCT 17 1934

SOAP

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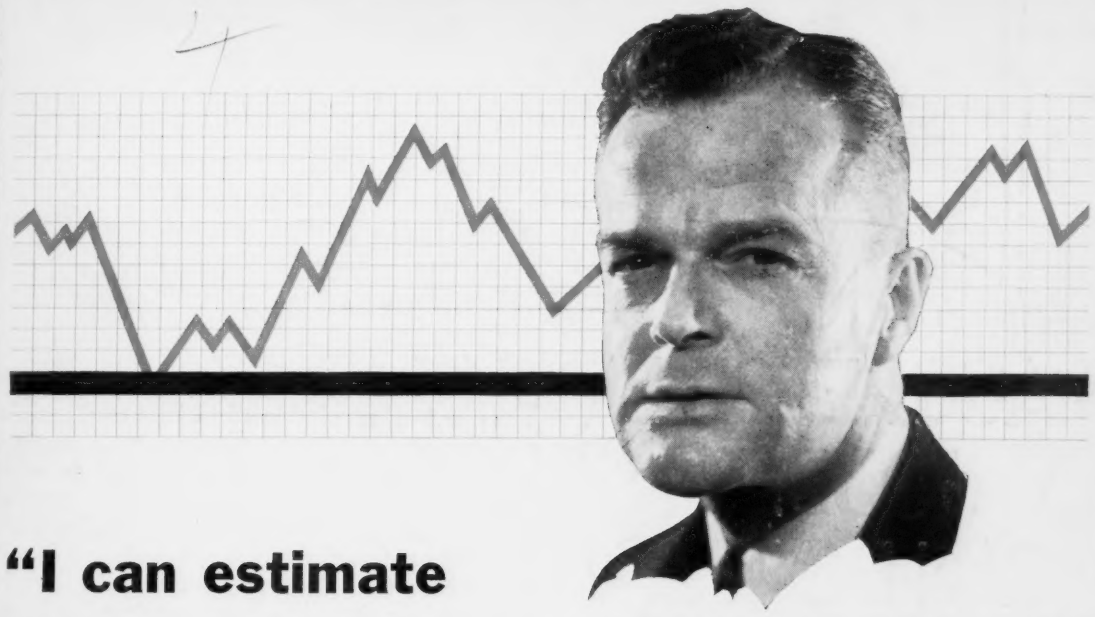

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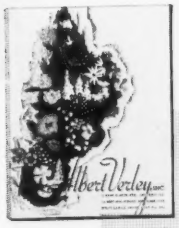

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SOAP

Reg. U. S. Patent Office

Volume X
Number 10

October, 1934

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NRA CODE GRAPHIC ARTS INDUSTRY 1934

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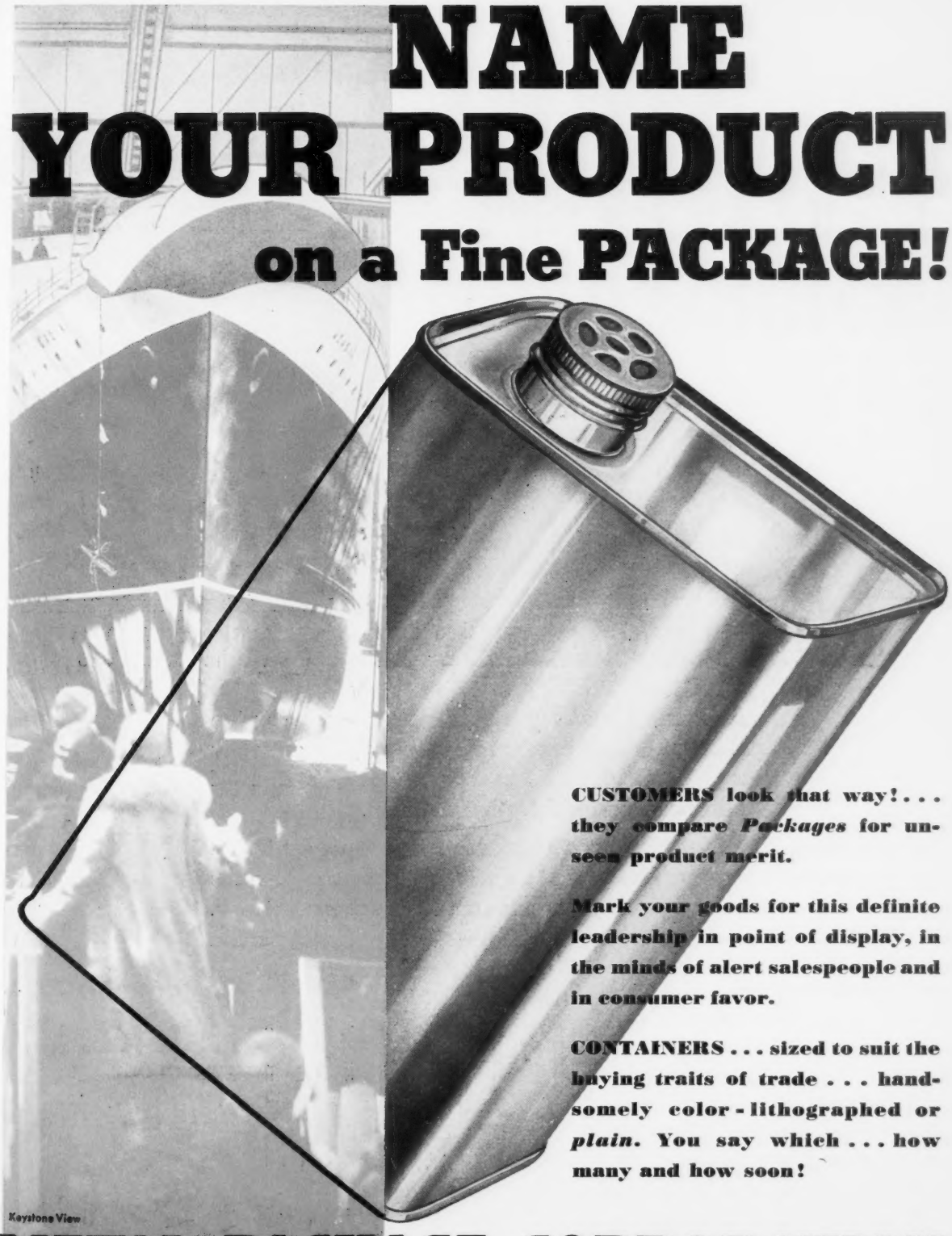

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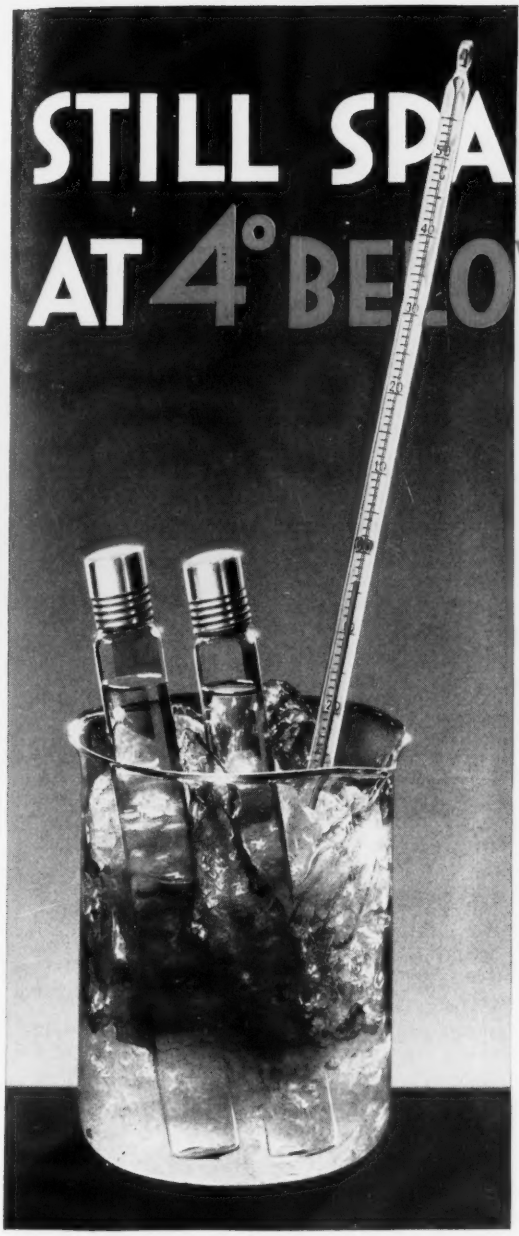

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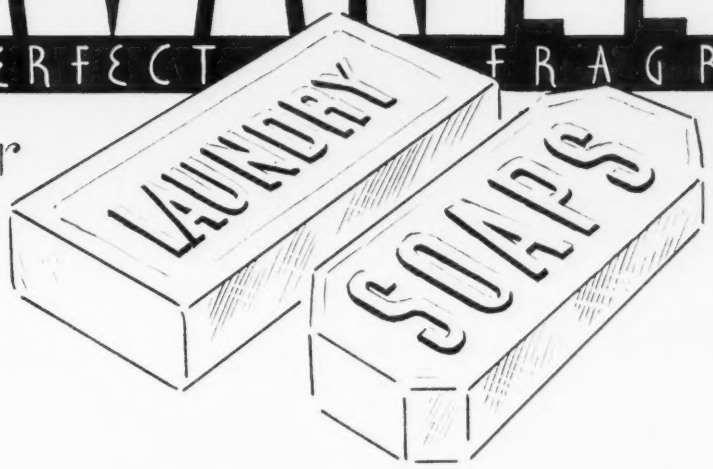

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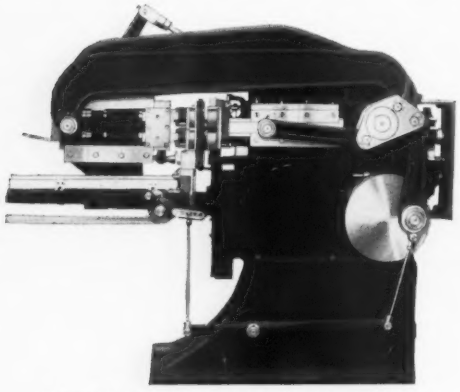

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NRA CODE GRAPHIC ARTS INDUSTRY 1934

SOAP

Volume Ten Number Ten

EDITORIAL

AS might have been anticipated, imports of coconut oil during the past two months have been more than cut in half. This, in itself, may help to impress Congress with the ridiculous and harmful character of the coconut oil excise tax, especially on Philippine oil. Already, there has been much talk and some published discussions on the likelihood of repealing the tax as it applies to Philippine coconut oil. The drastic cut in imports may have its effect, although this is the very object at which the proponents of the tax were aiming when they introduced the bill. The fact that several members of Congress from the farm belt, who sponsored the tax, were beaten for redesignation in the primaries, may be significant, although we are inclined to doubt it. The vagaries of politics are such that the oil tax probably had little or nothing to do with their defeat. Why should their farmer-constituents turn them down after they had fought "to save the American farmer from competition with cheap oriental labor in the Philippines"?

Repeal of the tax on coconut oil may come from two sources,—from the executive whip or from an overwhelming demand from the public and industry. The President stands in a peculiar position because of the actions of Congress aimed directly against the Philippines. The chances are that he will use his full powers when Congress meets again to undo what has been done.

Any overwhelming demand from the public for a repeal of the coconut oil tax will come only because of a noticeable sharp advance in the price of soaps and other products derived from the oil. The housewife can still buy soap at approximately the same low prices which have prevailed for several years past. There are still no end of fine, perfumed toilet soaps at five cents or less. The laundries, textile mills, and other industrial soap users have felt higher prices to a somewhat greater degree, but laundry chip can still be bought under eight cents. In short, the price advances in soap to the consumer have not been great enough as yet to attract serious attention, and until such time as prices are *sharply* and *noticeably* higher, there will be no spontaneous outburst of protest or active public sentiment against the tax.

Without any pronounced public pressure to repeal the tax, it appears that the soap industry may have to depend mostly on the ability of the President to whip Congress into line next January in order that the administration may fulfill its promises to the protesting Philippines. That any such move will be fought bitterly by the rendering and "dairy" interests, already basking in the sunshine of higher fat prices, is a foregone conclusion. However, as far as the soap industry and other coconut oil consumers are concerned, the President and his upset Philippine relations appear to be the most likely "out" of the present situation.

FROM Hammond, Indiana, comes word that the soap strike there has been settled and the plant reopened. The strike was called and the plant closed about two months ago. The shut down was ordered by the management after there had been a serious clash between pickets and workers. Reports were current that the plant might be abandoned altogether and the equipment moved elsewhere. However, after a series of conferences between the union

officials and the company, the factory is reopened with a guarantee by the union that another strike will not be called for at least one year.

The settlement of the strike and reported recognition of the union at Hammond came somewhat as a surprise. The controversy between labor and employer there was the most serious which has arisen thus far in the soap industry, inasmuch as it resulted in closing down the factory. Not all the employes were in accord with calling the strike originally. In fact, reports to us indicated that the active strikers were a small minority whose efforts were encouraged and directed by professional labor organizers.

At any rate, with any kind of union recognition at Hammond, it is reasonable to believe that attempts to unionize other soap plants will be made. Thus the labor problem of one plant becomes a labor problem for the industry as a whole. If labor in the industry is to have the benefits of collective bargaining, then we suggest that employers should also decide upon a uniform industry labor policy now and thus secure the benefits of a united front when and if the occasion may arise.

—♦—

AFTER reading some of the testimony in the Maine cosmetic case, we are inclined to come to the conclusion that if the State of Maine decides to enforce its new law to include soaps, it will mean the end of the sale of most nationally advertised toilet soaps in that state. This Maine legislation, like the Virginia net weight law, reveals how hopelessly stupid some state governments can be when it comes to legislation involving the chemical and physical characteristics of common products.

—♦—

THE importation of coconut oil fatty acids and their use free of any excise tax are "viewed with alarm" by some of the creamery and dairy publications. These publications point out that fatty acids are a menace to the domestic edible fat producer because one merely has to add together a fatty acid and glycerin, and—presto—there stands an edible fat in all its elemental purity. If coconut oil can be split into coconut fatty acid and glycerin, why not reverse the process? According to our dairy papers, the process is easy. But we fear that their belief in the magic powers of the chemist as far as the synthesis of edible coconut oil is concerned, is a few years ahead of its time. We suggest that they read the tale of Humpty Dumpty.

—♦—

FOR the past three months, Americans have given little attention to copra. Prices have been extremely low. European factors are understood to have been doing some rather heavy buying at the low figures. Early this month, the entrance of American purchasers into the market found stocks materially reduced and brought about a rather spectacular advance in price. Truly, this excise tax has scrambled the oil and fat market situation the world over. The opinion has been expressed that the market fireworks are not over yet. Talk of severe shortages of domestic fats is heard, which if true will mean increased imports of foreign oils by soapers irrespective of the processing tax.

—♦—

GLYCERIN values today on the gold standard are at an all-time low. In an article in the last issue of *Soap,* discussing the current glycerin situation, the first sentence at the beginning of the article failed to mention that the all-time low of values is based *on the gold standard.* The gold basis for calculations was referred to in the concluding paragraph of the article, but so that there may be no misunderstanding, it is pointed out here that the words "on the gold standard" should also have been included in the opening paragraph.

—♦—

LEADING soap manufacturers are preparing to fight in the courts the drastic interpretation of the law as covered by the Internal Revenue regulations on the collection of the excise tax on coconut and other oils. At the same time, we hear, some soapers are not paying the tax, but intend to await a court decision. This is distinctly a wrong procedure, according to those who should know. If it be found that the collection of the tax is illegal, it will be refunded later. If it be sustained, these companies are liable for a 25 per cent penalty in addition to the tax. Therefore, the taxes due to date should be paid at once.

SPOTTING
In Toilet Soaps

By JULIUS SCHAAL

WHEN spots appear in toilet soap, suspicion frequently points to the man at the kettle or to the perfumer, and yet the soap press and dies may be the real culprits. The realization that soap may turn spotty due to errors in the pressing operation is not new. Nevertheless, many manufacturers are unwilling to admit it and continue to blame the condition on the soap base itself and then on the perfume. That the die could be the cause has been held to be just so much humbug and the soapmaker and the perfumer have borne the brunt of the manufacturer's ire. Only after much had been published in the trade journals on catalytic influences in soap discoloration and the development of rancidity, did the facts of the situation receive more general recognition. That the yellow and brown spots may be caused in the actual pressing operation has long been proven by studies in actual soap plant practice. When a toilet soap which has gone through the press will keep for a year or longer without turning spotty, whereas this same soap after being pressed shows spots within one or two months, there is but little argument left but that the die is the cause or at least an important contributing factor.

It is really extremely annoying that, even after the saponification has been carried on with every degree of care and precaution, and after scrupulously considering the perfume used and avoiding any other ingredient which might cause discoloration, these infernal spots will show up later. Such spots developing in a month or so have come close to being classed as a calamity by many a manufacturer. They mean soap turned back to the factory from distributors and loss of prestige which may carry with it loss of subsequent orders from the same sources. Where these spots are a common occurrence, there are usually other contributory causes. Among these causes are poorly constructed pump conduits and storage reservoirs for the finished soap mass and incorrectly installed devices for blowing through live steam for the thorough draining of pipes. Where soap residues remain in the pipes, there is hydrolytic effect as well as catalytic. In many cases, it is a fact that when the soap base and its perfume are correct, the cause for spot formation must be found somewhere in the technical manipulation. In my practical experience as a manufacturing counsellor I have had frequent occasion to determine where the cause of the trouble is, and the following is written in an effort to point out how the die can be the cause and how the trouble can be avoided.

The use of steel dies I consider absolutely safe. Iron has the least tendency to produce disturbances, especially when the iron and the soap are in contact with each other in the cold state. Copper, on the other hand, is a very dangerous metal to use in contact with soap and for this reason I consider dies made of copper much more unsafe than those made of brass which contain a smaller amount of copper. However, both kinds of dies may be dangerous where there is any tendency toward discoloration. When the copper is suspected of causing the discoloration, one should bear in mind that every piece of soap would discolor, while, as a matter of fact, it usually occurs only in odd batches. Now, what is the cause? I will take the bull by the horns and say: "Poor and inexpert handling of the die." In this respect, many sins are committed, whether knowingly through laziness and lack of care, or unconsciously through ignorance or shortcomings in the material involved. Whichever may be the case, I wish to point out by the following explanations,

the importance and significance of the correct manipulation and use of soap dies. This subject is, in practically all cases, considered as of secondary importance and is treated all too frequently with unconcern.

The first requirement is the correct fitting of the press parts. One must be very careful to insure the free movement of the upper die in the press frame. One must therefore begin by tightening up the upper die, then introduce it into the frame and turn the bolts simultaneously on the right and on the left very slowly. If either the right or the left bolt is tightened up alone, there is no doubt that the press frame is drawn to one side, causing the upper die to rub up against the sides to a probably unnoticeable extent, but even such a slight rub causes a wearing away of the metal. After this comes the placing of the lower die. Here mistakes are most common, because many operators are careless in providing the right supporting plates. In most cases a smaller weight of soap is introduced than the space between the upper and lower plate requires to fill it. It is therefore necessary to insert extra plates underneath the lower die.

IT IS easily seen that it is extremely important to use properly fitting plate inserts in order to give the lower die an even support at the moment when the press closes. Here is where the trouble comes in most frequently. The general run metal plates that one finds around a battery of presses is often such as to make an expert soapmaker tear his hair. Old nuts, old metal washers, pieces of wood, covers, chunks of iron only half the size of the press plate, etc. It stands to reason that after the press has been closed a few times, all these various parts are shifted by the pressure. The lower die may remain absolutely unsupported on one side and by the enormous pressure, the unsupported end is pressed against the side of the frame. When the soap is expelled, after the pressing operation, there is an inevitable friction between the frame and the metal die and here is where the cause is located for the later catalytic action, namely, for the next pieces of soap that are pressed.

From time to time the operator will wipe the frame with a moistened finger and with the same stroke he also touches the dies and this is how traces of the metal are carried over to the die and its impression. Hence the same spots on the upper surface of the cake of soap. In a great many cases, I have been able to determine that hundreds of cakes in one pressing operation show the typical brown spots in the same position with respect to the edge of the press and I am sure that many others have observed the same. I have no hesitation in saying that this is the cause of at least 75 per cent of all catalytic spots and it is of the utmost importance to provide for halfway decently fitting supports. If these are provided, there will be no further trouble with spot formation or they will be much less frequent in occurrence.

I would advise that for every new die one should order properly sized supports to be used in conjunction with it. These should be obtained in various thicknesses ranging from 1 to 10 mm. If one will only take a good look at an old used die, he will be able to determine at once that the lower plates are considerably more worn than the upper. There is often 1 mm. play between the inner wall of the frame and the lower half of the die. With this play, the die that is improperly supported will be jammed against one side, when the press is closed. Consequently, old dies are much more likely to cause spot formation than new ones. It is seen, moreover, that the proper fitting of the die which is so often considered unimportant and trivial, does, as a matter of fact, play a tremendous part and that it is desirable to give this matter particular attention by the press operators to prevent the damage done by careless manipulation, and to have them convince themselves that the lower die must be properly supported.

I WILL now consider other causes in connection with dies which may result in spot formation and will discuss the treatment of the dies after they have been used. In most cases, the die, after having been used, is unscrewed and put away with all the dirt sticking to it. Most operators think they are unusually careful when they hurriedly wash the die or merely wipe it superficially before using it again. Nobody among the operators gives a second thought to the fact that all this time the dirt has corroded the metal and that a superficial washing by no means repairs the damage done. Of the next batch, at least the first 50 pieces of soap will suffer from catalytic action. In any case, it is advisable to reject the first 20 or 30 cakes, even if they look clean, and to revert them to the soap kettle. It is good policy to clean the die first by stamping a few pieces of old dry soap.

It is hardly necessary to point out the stupidity of moistening the press plates with the fingers. It is no uncommon experience to see a press operator sticking his wet hand into a bag of salt and then turning around and pressing two or three fingers on the die. That the soap gets spotty under such conditions, that it loses its color and sweats, needs no explanation. Besides, the die is ruined before its time and the press gets rusty and dirty. Soap press operators should be clean, accurate, and intelligent people. One has to use judgment to operate a press properly. Everything depends upon the soap that the press man gets. He should find out at once how much pressure is necessary to produce a clean piece of soap. Frequently, the soap should be exposed to the air, or it should have its edges clipped. In all factories where the shortcomings above described are absent—in other words, wherever there is care and proper order, the amount of spot formation and similar calamities are few.

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"Salary Standardization and Administration" is the title of a report just issued by the Policyholders Service Bureau of the Metropolitan Life Insurance Co. Copies can be obtained by addressing the company at 1 Madison Ave., New York.

Ewing Galloway

Automatic bottle washing and sterilizing equipment in a milk plant of a large New England dairy company.

Detergents for Dairy Industry

THE alkalies used by the dairy industry are relatively few in number. In a report by Arnold H. Johnson of the research laboratories of the National Dairy Products Corporation their composition and effectiveness are discussed. Technical grades of caustic soda, sodium metasilicate, trisodium phosphate, and soda ash constitute the chief dairy detergents. These alkalies alone and in mixtures with each other and a few other substances, are sold to the dairy industry under various trade names. When a detergent is required to have an abrasive action, volcanic ash or some other type of abrasive may be added. When it is desired to increase the colloidal effect, aluminates or starch and protein which have been previously treated with alkali may be used. Two detergents which have received some attention for special purposes are sodium orthosilicate and disodium phosphate. The orthosilicate is more alkaline than the metasilicate, while disodium phosphate is less alkaline than trisodium phosphate.

Three special alkalies, mixtures of caustic soda and soda ash, offered to the dairy industry were found to contain from 44.5 to 47.5 per cent of caustic soda, and 63.5 to 67 per cent of total alkali. Of four modified sodas, all fell within the range of 57 to 61 per cent of soda ash and 27.5 to 32.5 per cent of sodium bicarbonate. Six detergents contained considerable quantities of trisodium phosphate. The cleaners of this type varied in composition, four of them containing soda ash. A cleaner of the so-called colloidal type contained 66 per cent of soda ash, 15 per cent of trisodium phosphate, and a small percentage of colloid.

The relative ability of these detergents to dissolve such substances as milk protein, fat, etc., depends largely on the pH of the solutions and the proportion of the Na_2O which will react. From the nature of the alkalies it is obvious that caustic soda solutions have the highest pH in equivalent concentration, with the pH of solutions of metasilicate, trisodium phosphate, and soda ash decreasing in the order named.

In washing milk bottles, the washing operation should accomplish practical sterilization as well as physical cleanliness. A few years ago it was the practice to use 2 to 4 per cent of caustic soda for this. At present less caustic is used at higher temperatures. Caustic soda solutions used alone do not rinse well. An alkaline film adheres to the glass surface and is carried over into the rinse tank, so that rinsing cannot be properly done. Consequently salts of an alkaline nature are added to advantage to aid in rinsing the film of caustic solution from the bottle.

Because of its excellent detergent properties, sodium metasilicate has been tried out in several soaker-type washers. However, metasilicate appears to lack the lubricating properties necessary for smooth operation of the machine. The bottles do not drop freely from the carriers. Small quantities of this detergent added to caustic soda produce a clean brilliant bottle. Some objection has been raised to its use in that a large

(*Turn to Page* 45)

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The Sandalwood logs are transported from the Mysore forests to the distilleries via narrow gauge railway.

SANDALWOOD

and Other Essential Oils of India

By GEORGE K. MILLER

FOR many generations, the sandalwood oil of India has played an important part in soap perfuming the world over. Soaps in which sandalwood is the predominating odor have been much in demand for years, especially among the higher class luxury soaps. Combined with other oils and isolates, and more and more during recent years with synthetic perfume bases, sandalwood enters into a thousand and one odor combinations in soaps and also in various and sundry cosmetic preparations. As a producer of East Indian sandalwood oil, India has stood alone ever since this oil made its way into world commerce centuries ago. Today, it still has a practical monopoly as a producer of the wood, which is distilled not only in India, but also in the United States, England and Germany to produce the oil. There is also the sandalwood oil of Australia, but the character of this oil from the perfuming angle is considerably different from the East Indian, the latter being the type of odor ordinarily associated by the layman with santal in soaps or cosmetics. The Australian oil is reputed to have a field in soap perfuming to replace in some cases the more costly East Indian oil in whole or in part. Of course, owing to the fact that it does not conform to the U.S.P., its importation into the United States is attended with considerable complications in the way of affidavits that it be not used in medicinal preparations, and this has tended to restrict its use.

The sandalwood of commerce is the heartwood of *Santalum Album*, a small evergreen tree growing wild in Southern India, especially in the States of Mysore and Coorg and to a limited extent in Travancore and Sandur. In Mysore and Coorg, the trees are State property and private ownership is not recognized, while in Madras, although private ownership is recognized, production is still controlled by the Forest Department. Mysore is the largest producer of sandalwood, and, while in the past large quantities were exported, the local government has in recent years established two large distillation plants for the manufacture of sandalwood oil within the State which consume a large part of the wood produced.

Only the heartwood of the Sandalwood is scented, the sapwood usually being cut away prior to sale. The heartwood of a living tree consists of about one-third of the total weight of the tree. However, the root con-

tains a higher percentage of oil than in the stem and branch wood and is, therefore, more highly valued. The cleaned heartwood is cut into billets about 2½ feet in length and kept for drying in a closed warehouse to improve the aroma of the wood. The oil content is said to vary with climate and soil, ranging from three to seven per cent. Mysore and Coorg are reputed to produce the best sandalwood. Extraction proceeds throughout the year except in parts of the country where operations have to be suspended because of adverse climatic conditions. The sandalwood produced in Madras and Coorg is sold at auctions which are held once a year, usually in November or December.

The annual production of sandalwood from the State forests in Madras ranges normally between 600 and 700 tons. Mysore customarily produces 1,800 to 2,300 tons each year, most of which is used in the State distilleries. In Coorg, the annual production of sandalwood amounts to approximately 300 tons. However, when all trees affected by the spike disease have been removed, it is believed that the supply will be materially curtailed. To remedy this situation, sandalwood trees are being introduced into a number of suitable districts to expand future areas.

The exports of sandalwood from India to foreign countries during the fiscal years 1927-28 to 1931-32 are given in the following table, supplied by the Chemical Division of the Department of Commerce. Seventy to seventy-five per cent of this export is normally shipped from Bombay Province and the rest from Madras. The United States, the leading market for sandalwood, has gradually decreased its purchases since 1927-28, whereas the United Kingdom has taken larger quantities in recent years.

	1927–28	1928–29	1929–30	1930–31	1931–32
	Tons	Tons	Tons	Tons	Tons
United States	729	678	618	522	509
United Kingdom ...	25	40	28	50	89
Hong Kong	56	39	2	7	13
Germany	60	...	98	...	...
Japan	4	28	9	...	34
Other countries	119	175	188	129	139
Total	993	960	943	708	784

The distillation of sandalwood oil has been an indigenous industry in India for many centuries, carried on until recent years by rather primitive methods. This condition was changed almost overnight by the establishment of sandalwood distillation by modern chemical methods in the State of Mysore during the war period. The first Mysore State distillery was established at Bangalore, in May 1916. The original monthly capacity of 2,000 pounds of oil was shortly increased to 6,000 pounds, while in August 1917 a second factory was established at Mysore with an ultimate monthly capacity of 20,000 pounds of oil. The establishment by the Mysore Government of its own factories was predicated largely upon the marked decline in sandalwood quotations and increased price of sandalwood oil during the war and early postwar periods. Since 1921, however, prices have declined, and it has been stated that there is little profit in the oil distillation.

The production of sandalwood oil by the two Mysore factories from 1924 to 1931, was as follows:

1924-25	173,000
1925-26	196,000
1926-27	171,000
1927-28	208,000
1928-29	245,815
1929-30	194,226
1930-31	155,905

Sandalwood oil is also distilled to some extent in other parts of British India, principally at Kanonj in the United Provinces, Lucknow, Agra, Lahore, and in some places in Madras Presidency near the Mysore border. It is, however, only at Mysore, Bangalore, and Kanonj that modern methods of distillation are used. Mysore oil is marketed in England and in other countries by agents of the Mysore Government. The unit of sale in Bangalore is the seer of 24 tolas (one tola equals two-fifths oz.), shipments being made in copper pots of three quarts each. In Madras it is sold by the pound and shipped in tins packed in cases of 100 pounds.

India until the middle of the eighteenth century was the only source of supply of sandalwood. Discoveries of sandalwood were then made in the Eastern Archipelago and in certain island groups in the Pacific, notably Fiji and the Sandwich Islands. However, owing to unrestricted exploitation these sources of supply have long since been exhausted, and it is said today that the only serious rival of Indian sandalwood is the Australian sandalwood (*Fusanus Sticatus*). The average oil yield of the Australian species is said to be less than half that from the sandalwood of India. The Australian oil somewhat resembles the Indian oil, but its odor, composition, and optical rotation are different.

LEMONGRASS collection or cultivation in India is practically confined to the States of Travancore and Cochin and to the Malabar District of Madras. The crop is usually obtained in June and distillation continues until October, furnaces and stills being set up in the neighborhood of the plantations. The method of distillation is generally rather crude, the oil colored and the citral content low usually not exceeding 50 per cent, compared with lemongrass oil produced in Java containing from 80 to 90 per cent citral. In view of unsatisfactory prices obtained in foreign markets for the crude and adulterated oil, the Travancore Government during the period 1924 to 1928 carried on considerable research work and as a result a cheap process has been worked out for refining the impure oil at a central depot, Alleppey. This method is said to have doubled the value of the crude oil distilled.

Active export trade in lemongrass oil began about the beginning of the present century and by 1903-1904 large shipments were being made, principally to European markets. However, with limited demand and increased production in Malabar and Travancore, prices declined and distillation became unprofitable. A large demand during the war and an expanding outlet in the United

States during the post-war period stimulated production and exports, reaching a peak in the fiscal year 1928-29 and suffering a marked decline during the two subsequent years.

PALMAROSA oil is distilled in India from the flower heads of the *motia* variety of the grass *Cymbopogon Martini*. The major portion of the oil which is distilled is obtained from wild grass and it has been cultivated only on a very small scale up to the present time. Cultivated grass is said to lose its essential oil after the first rotation, when cultivated out of its habitat and plantations have failed for that reason. Two cuttings of the grass are made annually during the months of September to December. The first crop is said to give a higher percentage and also a better quality oil. Climate is said to be an important factor since a weak monsoon is reported to have an adverse effect on the yield of oil from a given quantity of grass. The main producing centers are in Nimer the Central Provinces, Berar, and Bombay Presidency.

A few years ago a firm was granted a lease for the exploitation of the grass producing areas in the Central Provinces and the installation of up-to-date distilling machinery. Three years' operations proved the venture unsuccessful, since there were too many difficulties in employing steam stills in the scattered jungles in which the grass grows. Also contributing to this failure was a heavy drop in the price obtained for this oil during the past few years. The decline is in a measure attributed to the increase in production of geranium oil in the French colonies. The actual production of the of the palmarosa oil is carried out by small contractors who lease the right of collection of the grass in the forest areas. They generally sell the oil in the local markets to middlemen who in turn sell it to the exporters.

Vetivert is known in India as Khas Khas grass and grows wild throughout the plains and lower hills of India and Burma. The grass is said to be cultivated in certain sections of India but comparatively small areas are under cultivation. Vetivert oil is produced by Indian distillers by crude methods for use in indigenous perfumes, but the output is not large and very little is exported. The best oil is produced by steam distillation. However, the roots are usually exported for distillation, as foreign houses prefer to distill their own oil.

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Some time ago the old English firm of Thomas Hedley & Co., Ltd., makers of Fairy Soap, became associated with Procter & Gamble. As a result of this association, a new, and one of the most efficient and up-to-date soap factories in the world, is operated at Trafford Park, Manchester, England. Two main buildings separated by railway sidings and a road, contain respectively the boiler house, soap boiling and glycerin departments,—and the soap finishing departments, offices and warehouse. One of the interesting general features is the housing of the boiler plant in the same building as the soap pans and the glycerin plant, so that the steam piping required for these processes is reduced to a minimum. Conventional conditions which are considered unpleasant or uneconomic have been persistently set aside. The original article describes the novel features of the factory layout in considerable detail. *The Industrial Chemist* **10**, 293-9, 336-42 (1934).

◆

HARD SOAP VERSUS SOFT

Hard soap is by far the most important type made by the leading producers, but in other respects there is wide variety in the proportions of the different kinds made in different countries. For instance, soft soap forms one per cent of the total output in Canada, two per cent in Great Britain and the United States, and four per cent in France, while in Germany it constitutes no less than 20 per cent of the total. In Holland the northern countries of Europe the proportion of soft soap is 50 to 70 per cent. Soap powder and flakes have largely taken the place of soft soap in the United States and Great Britain, where they make up 24 per cent and 21 per cent respectively of the total; in Holland they amount to 23 per cent. The following table gives details for the latest available years.

Varieties of Soap Produced

(in thousand tons)

	Soft Soap	Hard Soap excluding Toilet Soap	Soap Flakes and Powder	Toilet Soap	Other Soaps
U. S. A.	29	717	336	196	35
Germany	103	277		38	26
France	15	355		30	—
Great Britain	14	274	96	22	39
Russia		375		30	—
Netherlands	48	15	20	2	—
Canada	0.7	58	8	14	0.2
Sweden	28	2	6	4	—
Denmark	23	7	6	3	1

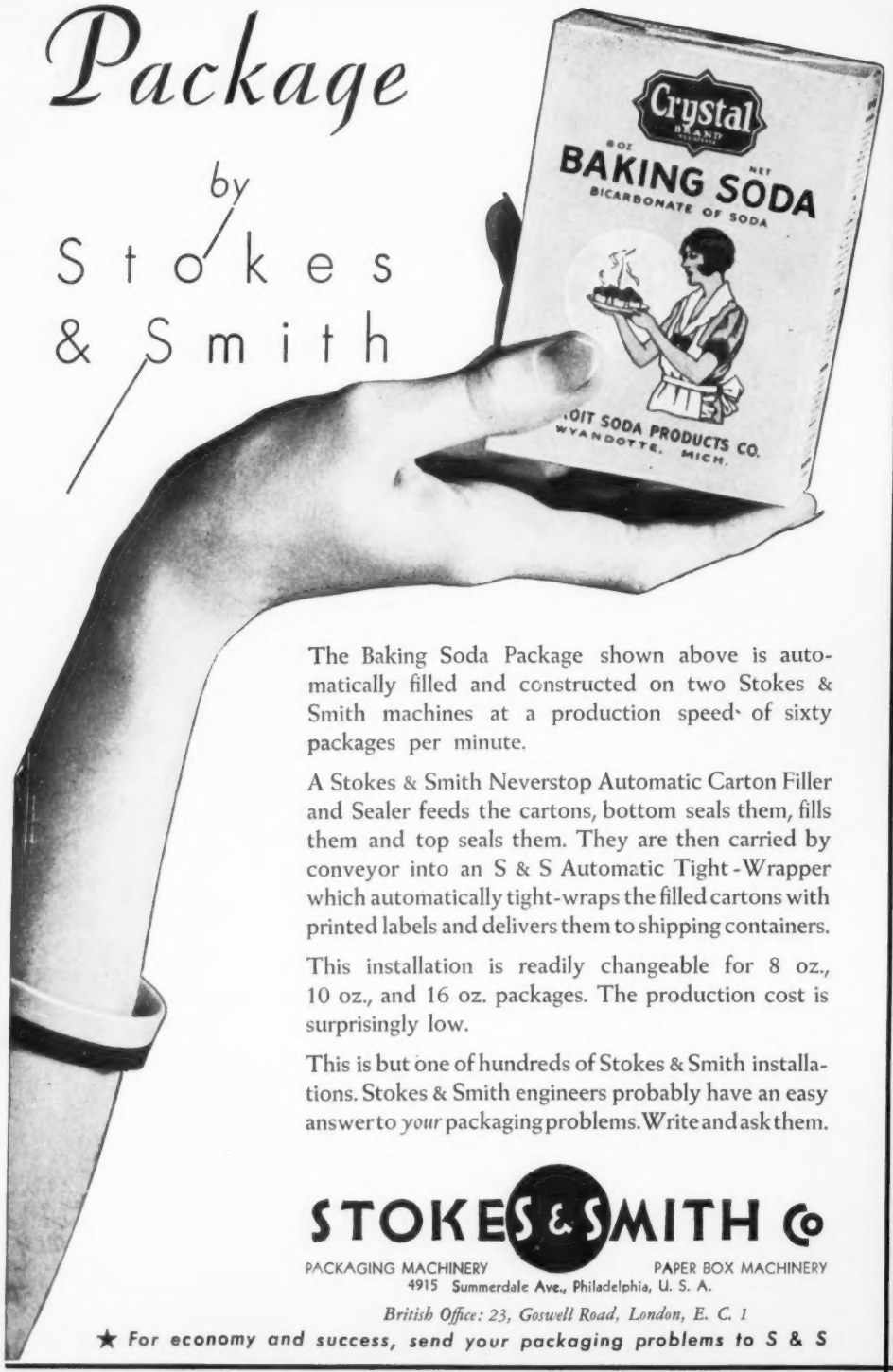
In Germany and France the hard soap class includes soap flakes and powders, and in the Russian figures, soft soap is also included.

In certain countries, especially in Eastern Europe, soap-making is still a domestic occupation, and large quantities of home-made soap, or soap made in small workshops employing only one or two workers, are still used. These very small one-man "factories" are also common in Germany. Statistics for these are obviously unavailable, so that it is quite probable that per capita figures of soap consumption must be considerably increased if account be taken of home-made products. In any case, the output of soap in the world shows no sign of declining, but the form in which it is produced may be expected to change from time to time. *The Economist* **118**, 1017 (1934).

◆

Packaging Machinery Manufacturers Institute held its annual convention at the Edgewater Beach Hotel, Chicago, October 12, followed by the annual dinner in the evening. H. H. Leonard, vice-president and general manager of Consolidated Packaging Machinery Corp., Buffalo, is president of the organization.

Package by Stokes & Smith



The Baking Soda Package shown above is automatically filled and constructed on two Stokes & Smith machines at a production speed of sixty packages per minute.

A Stokes & Smith Neverstop Automatic Carton Filler and Sealer feeds the cartons, bottom seals them, fills them and top seals them. They are then carried by conveyor into an S & S Automatic Tight-Wrapper which automatically tight-wraps the filled cartons with printed labels and delivers them to shipping containers.

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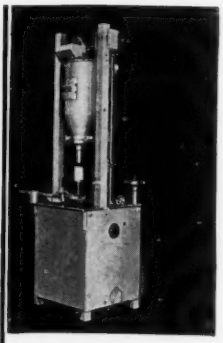
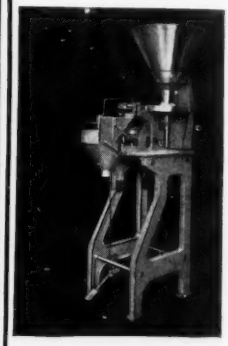


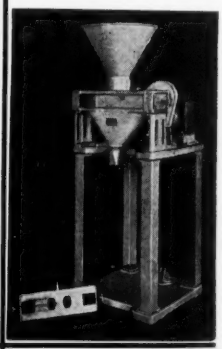
UNIVERSAL FILLER

For any powder, granular product or paste. Fills by gross weight, volumetric measurement or packing. Speed: 15-30 units per minute.



CONVEYOR NET WEIGHT SCALE

For nuts in shell, hard candies, flaked products, etc. Fills by net weight. Speed: 15-25 units per minute.

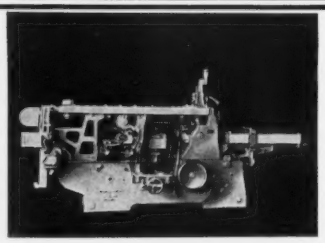


VOLUMETRIC FILLER

For salted and shelled nuts, tea, whole spices, flaked cereals, etc. Fills by volumetric measurement. Speed: 20-30 units per minute.

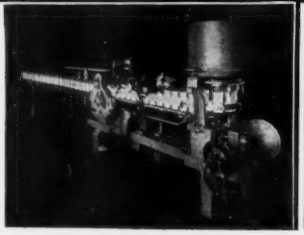
AUTOMATIC TIGHT-WRAPPER

For all food and grocery products. Automatically tight-wraps carton with printed label. Speed: 60-70 units per minute.



NEVERSTOP FILLER & SEALER

For all grocery products in cartons. Feeds cartons, bottom seals, fills, top seals. Speed: 40-75 units per minute.



NASCENT SOAP
In Theory and Practice

BY NASCENT SOAP is meant soap in the process of formation by reaction of fatty acid with alkali. The topic is the subject of much discussion. It has been dealt with extremely well by Archibald Rayner in a recent issue of *Chemistry and Industry*, who gives some quantitative data on the subject. It has been conceded for some time that nascent soap is a more active detergent than ordinary soap, but why it is, is still an open question.

Soap can be made industrially by saponification of fats with caustic soda, or by neutralization with alkali of preformed fatty acids. The former process is a slow one, whereas the latter takes place immediately on contact of the two reacting substances. The action of soap at the moment of contact is the phenomenon under discussion.

The limited efficiency of soap involves the use of mechanical means to remove the greater part of the dirt. When ordinary means fail, the use of further friction is resorted to, and concentration of soap by scrubbing it into the fabric. Such methods react very unfavorably in the long run on the life of the goods which have been washed, particularly wool and natural and artificial silk. If nascent soap is unusually efficient as a detergent, what are the possibilities as to its use?

Soap formed *in situ* in articles which are being cleansed, or nascent soap, has been used industrially for a long time in several ways. For instance to remove particularly dirty marks and stains, it is common laundry practice to rub a little oleic acid into the mark, and wash it out with alkali. The concentration of soap in the fibers naturally gives greater cleansing than by rubbing on the surface in the ordinary way. Also in the manufacture of woolen goods, the oleic acid which has been used on the wool in the combing operation is scoured out of the finished piece by treatment in an alkaline bath of soda ash.

As long ago as 1904, a patent was obtained for removing printing ink from printed paper, in which the paper was pulped in the presence of water and oleic acid,—strong ammonia was then added, and the pulp washed with water. Oleic acid served as a solvent for the oily matter in the printing ink, and ammonia removed the oleic acid from the pulp by forming ammonia soap. Attempts to remove the printing ink by first mixing the oleic acid and ammonia, then adding the mixture to the pulp, showed no appreciable effect.

A study of this problem has been made on a scientific basis, using a standard soil and several different soap powders. The cloth to be washed was dipped in a mixture of crude olive oil, mineral oil, and graphite in such a manner as to be reproducible. The results obtained with four different powders each containing soap and soda ash, is as follows:

Powder	*Composition*	*% of Dirt Removed*
1	20% soap	80
2	15% soap	70
3	40% soap	60
4	60% soap	60

Supposedly the amount of soda ash present decreased with an increase in soap content. The results are rather surprising as cleansing power tends to be inversely proportional to the soap content. This suggests that the cleansing action of soda ash is greater than that of soap, which practical experience has shown not to be the case. In an experiment carried out with soda ash alone, 50 per cent of the dirt was removed, while water alone removed no dirt. The most likely explanation appears to be in the action between soda ash and free fatty acid to form soap in the fabric, of apparently very high cleansing power. To test this theory, the experiments were repeated with the olive oil replaced by an equivalent amount of mineral oil, with the following result:

Powder	*Composition*	*% of Dirt Removed*
4	60% soap	70
3	40% soap	60
1	20% soap	50
2	15% soap	40

These results agree with what would be expected, since the powders containing the least soap have the least cleansing action. When soda ash alone was tested, no appreciable cleansing took place. It is evident that soap formed in the fabric under the conditions described possesses remarkably strong detergent properties.

Further proof of this was sought by soiling cloth with oleic acid alone. On applying 0.5 gram of oleic acid to soiled cloth with the aid of a volatile solvent, and using a slight excess of soda ash in the wash water, it was found that the cloth was practically clean. The result was very much better than anything obtained previously. An equally good result was obtained when soda was replaced with ammonia.

In comparing further the efficiency of nascent oleic acid soap with ordinary soap, a brand of soap flakes containing about 84 per cent of fatty acids was used. Seven grams of soap flakes in 1500 cc. of water, or

6 grams of fatty acid were required in the machine to give results equal to those obtained with 0.25 gram of oleic acid added to the cloth. Weight for weight, fatty acid converted into soap in the fiber had a cleansing power of over 20 times that of the same amount of fatty acid used as soap under normal conditions. It appeared that three factors might enter into this; (1) concentration of soap in the fabric, (2) increased detergent action of nascent soap, and (3) increased detergency resulting from liberation of bubbles of gaseous carbon dioxide.

The extent to which concentration of the soap in the fabric would increase its efficiency was tested by the application of varying amounts of soap flakes dissolved in alcohol, to pieces of standard soiled fabric, followed by evaporation of alcohol. Experiments were made to ascertain what amount of such soap was necessary to clean the fabric completely, bearing in mind that this was possible with 0.25 per cent oleic acid. Nearly 2 grams of flakes were required to give the desired result. The following amounts of fatty acids were therefore necessary to give the same cleansing effect:

	grams
(a) As free oleic acid	0.25
(b) As soap distributed in fabric	1.76
(c) As soap in aqueous solution	5.90

The results appear to prove that the increased detergent action observed is largely due to nascent soap.

IT HAS been contended by some that liberation of gas bubbles in fabric facilitates the removal of dirt. As neutralization of oleic acid with sodium carbonate as described, results in the liberation of carbon dioxide, it appeared possible that this might be an additional factor in increasing detergency. This must definitely be discounted in view of the fact that neutralization with ammonia gave results fully equal to those obtained with sodium carbonate.

It is obvious that the application of oleic acid in a solvent such as benzine cannot be used as a practical means of taking advantage of the detergency of nascent soap in ordinary washing. Experiments were carried out to ascertain to what extent the use of an aqueous emulsion of oleic acid would be helpful. Considerable difficulty was experienced in obtaining an emulsion which would persist on dilution with water. By a suitable method of mixing, an emulsion was finally obtained which, when diluted with warm water to give a fatty acid content of 0.2 per cent, showed no visible separation of fatty acids after 15 minutes. The ingredients were:

	Per Cent
Oleic acid	45
Sulfonated castor oil	5
Glue	1.5
Water	48.5

Comparative trials using this emulsion gave results distinctly inferior to those which could be obtained with an equal amount of oleic acid introduced into the fabric by means of benzine. In order to get results equivalent to what could be obtained with 0.25 gram of oleic acid added in benzine, it was necessary to use as much as 2 grams of emulsion, that is 1 gram of oleic acid added as an aqueous emulsion. However, six times the weight of fatty acids applied as soap flakes was necessary in order to get similar results. Attempts have been made to modify the properties of the emulsion in order to increase its efficiency, without any marked success. The emulsion is marketed as described, according to British Patent No. 333,177.

THE method of using the emulsion is to dilute it to give a content of about 0.2 per cent of fatty acid. The articles to be washed are dipped in this and the surplus liquid squeezed out. They are then put in a dilute solution of sodium carbonate, or preferably sesquicarbonate and stirred gently. The formation of soap and the immediate liberation of the dirt as the soap forms is very apparent. When this process is compared side by side with the action of a strong solution of soap flakes, the difference between the rates at which the dirt is liberated is easily observed. The action of the soap solution is very much slower and a certain amount of friction is required in order to get the dirt to come away from the fabric.

The rest of the washing operation consists simply of a number of rinsing operations which are necessary to wash away the loosened dirt. With the exception of certain greasy marks and stains commonly found on cotton and woolen goods, and which in ordinary domestic and laundry practice it is necessary to scrub out, frequently at the same time scrubbing away the fibers with the dirt, all ordinary soiling can be removed without any recourse to friction.

The difference between the removal of dirt by the use of emulsion and with ordinary soap flakes was shown by tests with 2 pieces of flannel soiled with a 1 per cent solution of Oildag in benzine. One piece of flannel was soaked in a 10 per cent solution of the emulsion. It absorbed 12.5 cc. of solution and therefore contained 0.56 gram of oleic acid. One beaker was filled with a dilute solution of sodium sesquicarbonate and a second beaker with a solution containing 0.32 per cent of soap flakes in 800 cc. of water, that is, 2.4 grams of soap or 2.1 grams of fatty acids combined as soap. When the emulsion-treated cloth was put in the first beaker containing the alkali, and stirred around a few times, the liquid almost immediately became black. The cloth when squeezed out was almost free from dirt. The other piece of cloth was stirred around similarly in the soap solution. The liquid was scarcely colored and the flannel was unaltered in appearance. The soap solution failed to clean, while one quarter of the amount of fatty acid as nascent soap, cleaned almost completely.

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Sodium Perborate

Its Use As a Detergent Aid in Europe

SODIUM perborate is receiving wide acceptance in Great Britain and Germany as a bleaching agent, both for laundry and textile purposes. Its formula may be written as $NaBO_3$, $4H_2O$ or $NaBO_2$, H_2O_2, $3H_2O$. The latter illustrates its action as a bleaching agent. In aqueous solution, hydrogen peroxide, borax, and caustic soda are formed. Pure sodium perborate yields only about one-eighth of its weight of caustic soda. This does not give a solution sufficiently alkaline to decompose the hydrogen peroxide. It is to be noted that the latter decomposes in a strongly alkaline medium. Pure perborate contains 9.5 to 10 per cent by weight of available oxygen. Solutions of perborate may be used for bleaching purposes without previous neutralization of the alkali, provided the alkali itself has no harmful effect on the goods. Thus for cotton, linen and other vegetable materials, neutralization is unnecessary. For woolen, silk and other animal fibers, which are adversely affected by caustic soda, it is preferable to neutralize with acid and then to make the bath slightly alkaline with ammonia, trisodium phosphate, sodium silicate, or similar mild alkali. All solutions which depend on hydrogen peroxide for their bleaching power must be made slightly alkaline to obtain satisfactory bleaching. Neutral liquors are too slow in their action, and strongly alkaline liquors decompose too readily.

The decomposition of perborate solutions is accelerated not only by excess alkali, but by increase in temperature and by the presence of heavy metals or their salts, such as copper, brass, iron, manganese, etc. These should be avoided in all apparatus used to contain perborate or hydrogen peroxide solutions. Traces of metallic substances present in steam that passes through copper or iron pipes are particularly harmful. Serious decomposition may occur if the liquors are heated by blowing steam directly into them through such pipes. Tin, lead and some stainless steel alloys have little effect. The same precautions have to be taken with perborate as with hydrogen peroxide.

Sodium perborate is suitable for addition to ordinary wash water in the laundry, since it has no precipitating action on soap, and is most efficient when used in a warm solution. Its use in this way prevents the reduction of vat dyes in colored and striped goods due to the presence of starch and other reducing substances. It prevents loss of color, change of shade, and bleeding of such dyes. At the same time the bleaching action improves the white background, adding to the finished appearance of the goods. It therefore is important as a bleach for colored or striped cotton, linen and rayon goods, for which the use of hypochlorite bleaching agents is inadvisable.

In England the use of woolen clothing is much more common than it is in this country, due both to the colder climate and to the common lack of central heating. Probably this accounts for the fact that they have paid a great deal of attention to the proper cleaning of wool. Sodium perborate is recommended for the bleaching and removal of stains from wool and from natural silk. Ordinary hypochlorite preparations are apt to damage these, but perborate is a safe and effective bleaching agent for animal as well as vegetable fibers, and is therefore capable of very wide application. Used with soap, it is capable of removing some of the most obstinate stains, particulaly those of an organic nature such as tea, coffee, perspiration, grass, etc.

Laundry Work

FOR an average size washwheel, three to four ounces of perborate is used per 100 pounds of cotton, linen or rayon goods. It is preferable to dissolve it first in warm water or soap solution. Larger machines require more perborate in proportion to the weight of the goods. For badly stained articles, up to two pounds of perborate per 100 pounds of goods may be added without detriment to the fabric. No neutralization is necessary. The temperatures are those ordinarily used for this class of work.

In bleaching wool and silk goods, the perborate is often used in a separate bath, but may be used in the wheel. If used in a separate bath, about 100 gallons of warm water (80 to 90° F.) is run into a wooden or earthenware tank, and one gallon of commercial 60 per cent acetic acid or ¾ gallon of 80 per cent acetic acid is added. Then 8¾ pounds of sodium perborate is added gradually, stirring with a wooden stick. Just before use, the solution is made faintly alkaline with ammonia or an alkaline salt such as sodium silicate. Bleaching is done at a temperature not over 100° F., or cold if preferred.

Acetic acid is added to neutralize caustic soda liberated from the perborate. If this is not done, a slight yellowing of the material may result. Goods bleached in a previously neutralized bath are a clear white. Ammonia gives a quicker bleach than does sodium silicate, but causes greater decomposition of perborate, so that it is less economical. Bleaching and stain removal are naturally more rapid in a warm rather than a cold bath.

To bleach wool and silk goods in the wheel, dissolve about four ounces of perborate in warm water and add

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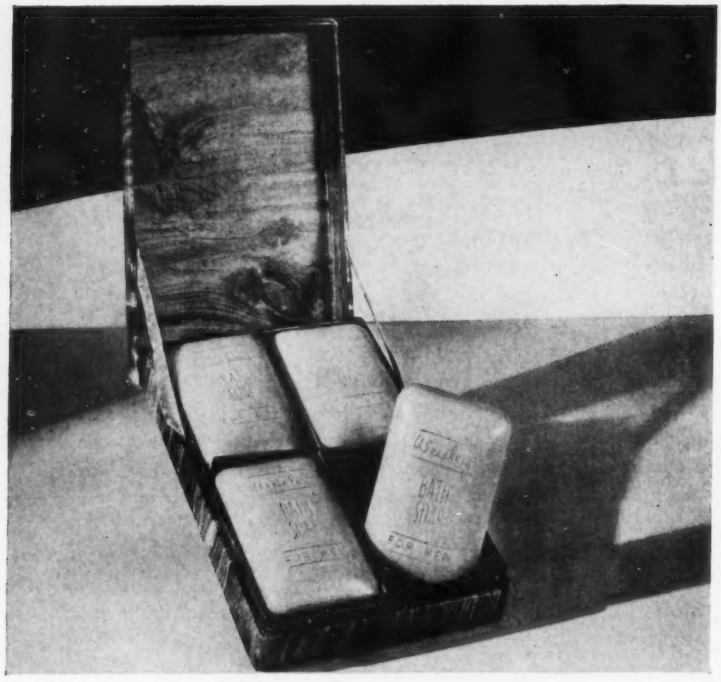
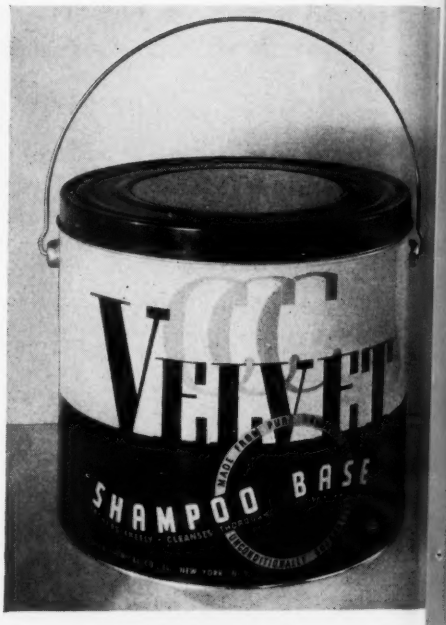
New Products



A bath soap gift package for men—a new item from Allen B. Wrisley Company of Chicago. Four cakes in a paper covered box, imitation of natural wood. A fine quality soap, light tan in color, with a "man's" odor.



A lithographed pail for CCC Velvet Shampoo Base in a striking color combination of orange, maroon and yellow, in ten and twenty-five pound sizes. Just adopted by Clifton Chemical Company, New York, the manufacturer

An attractive new container for a white shoe cleaner—a bottle with stippled sides and shoulders. "Checker White" is a new product of B. E. Brown and Company of Boston, who have been manufacturing since 1855. Bottle by Owens-Illinois.

and Packages

Windsor Wax of Hoboken, N. J., presents two new retail packages to the trade under their own brand name—a no-rub liquid wax and a furniture polish. Can by Continental, bottle by Owens-Illinois, and closures by Anchor Cap.

Heetfield-Tillou

Fabriklene of Merck & Company of Rahway, N. J., is a fabric spotting and cleaning fluid which recently appeared in a new container by the Giles Can Company of Chicago.

Three new products in the shoe cleaner and polish field—"2-in-1", Dart, and White Shine, the first two equipped with special applicator closures by Armstrong Cork and the third with a metal cap by the same firm.

D & O

"THE STANDARD OF QUALITY"

Established 1798

Our products can be relied upon. They have stood the test for over 135 years and are sold at lowest possible prices.

DODGE & OLCOTT COMPANY

180 Varick Street **New York, N. Y.**

Branches:

CHICAGO — ST. LOUIS — LOS ANGELES — BOSTON — PHILADELPHIA

"The integrity of the house is reflected in the quality of its products".

GLYCERIN PRODUCTION SHOWS INCREASE

Larger domestic production and heavier imports of glycerin since the beginning of 1934 reflect increased activity among the numerous industries in the United States which use this material, according to C. C. Concannon, Chief of the U. S. Commerce Department's Chemical Division. Production of all grades of glycerin during the first half of 1934 increased almost 50 per cent to 143,000,000 pounds, compared with the corresponding period of last year and represents the first general increase in recent years. Glycerin of 80 per cent basis, ranked first in production and increased 55 per cent to 79,000,000 pounds and was followed by "chemically pure" glycerin which increased 77 per cent to 41,000,000 pounds, and grades used chiefly in the manufacture of industrial and other explosives which increased 32 per cent to 23,000,000 pounds compared with the corresponding period of 1933. Notwithstanding this large gain in production United States imports of crude glycerin during the first eight months of 1934 increased 133 per cent to approximately 11,000,000 pounds, valued at $728,600, compared with the corresponding 1933 period. Imports of refined glycerin declined 40 per cent in quantity to 1,409,500 pounds but the value advanced slightly to $132,750.

SOAPERS TO FIGHT TAX REGULATIONS

A number of leading soap manufacturers in conjunction with the Bureau of Raw Materials for American Vegetable Oils and Fats Industries, Washington, are drawing up plans for testing the legality of such of the regulations covering the collection of excise taxes on coconut oil and other imported oils under Section 602½ of the Revenue Act of 1934 as do not appear to be warranted by the wording of the law. The litigation will be carried on by one leading soap company, it is believed, with the Bureau merely acting as a coordinating agency.

Advice to soap manufacturers in regard to handling tax payments has been given by John B. Gordon of the Bureau of Raw Materials. He advises soap makers not to delay making payment of taxes on coconut and other oils, otherwise there will be a penalty of 25 per cent. He states that some firms have withheld payment of taxes to await the outcome of court actions which will be started shortly, and that this is the wrong procedure. The tax should be paid when due and a claim also filed on Form No. 843. However, Mr. Gordon advises that before any claims are actually filed by a soaper, that he submit all the facts in detail to the Bureau so that they may be placed before the counsel of the Bureau and the soap maker advised as to the best manner of presenting his claim.

Mr. Gordon further advises that manufacturers of cold and half boiled soaps which contain glycerin who desire to rework scrap or returned soap manufactured before May 10, write to the Commissioner of Internal Revenue at Washington requesting permission to rework soap of his own production and that the "article intended for sale" was made before May 10. The manufacturer should also explain that he has no facilities for removing the glycerin.

PACIFIC SOAPERS ASK PRICE FILING

An amendment calling for the filing of identified lists of prices and price terms has been proposed by the Pacific Coast potash subdivision of the soap and glycerin manufacturing industry. The price lists would cover liquid hand soaps, concentrated liquid soaps, liquid floor soaps, base soaps and U. S. P. green soaps. The list would be extended to cover such other potash soap products as the fair practice agency might designate. Another amendment would prohibit destructive price cutting. Objections or amendments were to have been filed with Ovid E. Roberts, Jr., assistant deputy administrator of the NRA, Washington, before October 15.

SET HEARING ON SOAP CODE STATUS

A hearing will be held in Washington, October 23, before Deputy Administrator Harry C. Carr of the N.R.A. to consider a proposal to remove soap from the definition of cosmetics and toilet preparations in the retail drug code. The hearing has been called to determine whether the retail drug code shall be modified in this respect, and, if so, how. A conflict of authority between the retail drug code and the retail grocery code over control of soap sales was temporarily settled by the N.R.A. last Spring in an order placing all soaps except shaving preparations and shampoos under the grocery code. At that time it was expected that the matter would be reopened later.

Iowa Soap Co., operating from its eastern plant at Camden, N. J., is conducting an extensive sampling program to acquaint eastern housewives with its "Magic Washer" soap powder and "Protex" toilet soap. Full-size samples are being given in a door-to-door campaign, together with coupons redeemable at grocers for additional full-size packages. This is the same type sales campaign the company used with success in the middle west where its main plant is located is Burlington, Ia. The expansion into the eastern market was made last spring when the plant formerly owned by the Dobbins Soap Mfg. Co. at Camden was purchased.

K. C. Chemical Co., 5228 Delmar Blvd., St. Louis, maker of "Kwick" cleaner, has recently incorporated, with E. P. Scott, Columbia, Mo., as president, and Percy M. Klass, St. Louis, as vice-president.

Patterson Foundry and Machine Company, East Liverpool, Ohio, has placed the direction of all its advertising with Walker and Downing, Oliver Building, Pittsburgh.

CANADIAN SOAPER IN ALCOHOL CASE

Oil deals between Eastern Distributors, Registered and a local soap manufacturing firm were brought out in evidence recently at a further hearing of the case of William Fraser, president of Eastern Equipment Co., Dorval, who with Rodolphe Pharand, foreman, and Amedee Brabant, contractor, is charged with having defrauded the Canadian Government out of the sum of $1,700,000 and conspiring to smuggle 200,000 gallons of alcohol into Canada from the United States. The prosecution claimed the alcohol was brought into the country in tank cars, with a layer of olive oil on top. Morton Darling, partner in the soap manufacturing firm of Darling and Brady, Limited, testified as to the transactions his firm had had with Eastern Distributors, Registered, whom he regarded as a wholesale olive oil importing concern.

His firm bought some 10,000 gallons of olive oil from Eastern Distributors. The last shipment of some 58 drums at $20 a drum was still owing. The deals had been made through Frank Harris of New York, in whose name the importing concern was reported registered. Mr. Darling had seen Harris on several occasions, the last time being in May. After that the Royal Canadian Mounted Police had visited Mr. Darling in connection with his oil purchases. Some time before their visit Harris had disappeared and Mr. Darling had not seen him again.

HITLER SOAP BARRED

Germans must not wash themselves with soap portraying Hitler's face, according to the new Nazi regulations. Since the Nazi regime assumed power eighteen months ago the Swastika emblem has been applied to Christmas tree stands, embroidered on bedroom slippers, and stamped on household articles. Recent enthusiasm has caused manufacturers to stamp soap with Hitler's silhouette. Nazi officials have forbidden this form of propaganda as inconsistent with the dignity of the Reich's President and Chancellor.

Emile Schlienger of Bertrand Freres, Grasse, France, has been in the United States for the past month calling on the consuming trade in the company of F. C. Theile, P. R. Dreyer, Inc., New York, American agents for Bertrand Freres. Mr. Schlienger reports that prices on floral products must be distinctly higher this year than the abnormally low figures prevailing a year ago. New crops are for the most part small in size and carry-over stocks are low. The new lavender crop is estimated, he said, at only about sixty-five tons, or not much more than one-half of normal.

Felton Chemical Company, Brooklyn, announces the opening of a New England branch with offices located at 80 Boylston Street, Boston. D. W. Zuckerman, formerly at the New York branch, will be in charge of New England sales.

OPEN SOAP BEAD PATENT SUIT

With former Secretary of War, Newton D. Baker as attorney for the plaintiff, trial opened in federal district court at South Bend, Indiana, on Oct. 1 in the million-dollar patent infringement suit involving the manufacture of Rinso by Lever Brothers Co. Colgate-Palmolive-Peet Co. and the Procter & Gamble Co. charged that their patent rights covering the manufacture of soap in the form of minute globules, were infringed. Particular charges brought out by Mr. Baker were that Lever Brothers continuously developed Rinso until it approximated a product of the Colgate Co. Attorneys for the plaintiff companies have rented a large South Bend residence in which to house their witnesses in order to keep them under surveillance.

Moving his courtroom to a laboratory on the second day of the trial, Federal Judge Thomas W. Slick witnessed the manufacture of soap. Under the direction of Dr. Ralph Ferguson, chief research chemist of Procter & Gamble, chemists produced soap in the laboratory courtroom set up especially for the trial while Dr. Ferguson explained how the Lever Brothers product is alleged to infringe patent rights of his employers.

In answer to this demonstration, attorneys for Lever Brothers, headed by Frank Parker Davis of Chicago, explained by motion pictures in the courtroom and by verbal statements how Rinso is no infringement of the patent rights of Colgate-Palmolive-Peet and Procter & Gamble. Mr. Davis said the Rinso product is a granular soap, rather than one produced by the drying of minute soap globules, and asserted Lever Brothers pioneered the manufacture of such soap forms in 1919. Trial of the suit, on which hinges disposition of Rinso profits since 1927, is expected to require more than a month.

FIRE AT BOAKE LONDON PLANT

Gas masks were used by London firemen when fighting a serious fire at the chemical works of A. Boake, Roberts & Co., Ltd., Stratford, recently. The fire was in the metallic soap department, a large building in the heart of the factory, and the brigade was busy for the best part of a day extinguishing it. Severe damage was suffered by the soap plant.

D. M. Wilhelm, who has been sales manager of The Patterson Foundry & Machine Company for the past four years, has been elected secretary of the Company, being succeeded as sales manager by E. M. Underwood, formerly division sales manager, at East Liverpool, Ohio. Graduated from Carnegie Institute of Technology in 1923, Mr. Wilhelm was for several years plant engineer at the Springdale power plant of the West Penn Electric Company at New Kensington, Penn. He left West Penn to join the Patterson Company in 1927 as field engineer, being transferred to the sales department two years later and becoming sales manager in 1930.

CHICAGO TRADE NOTES

THE first fall meeting of the Chicago Perfumery, Soap and Extract Association was held October 2nd at the Hamilton Club. The members heard Howard Lyon, member of the code authority for the perfume industry, give a talk on the industry's code and the way in which it is working.

The final 1934 tournament of the Golf Auxiliary of the Chicago Drug and Chemical Association and the Chicago Perfumery, Soap and Extract Association attracted forty members and guests to the Glen Oak Country Club at Glen Ellyn. Prize winners were as follows: Class A—H. W. Cochran, H. E. Larson, John Wilhelm, and J. Swart; Class B—L. C. Shepard, H. Hitzeman, A. G. Schneider, and Harry Elwell; Class C—Ray Morris, W. H. Muttera, W. H. Schutte and Edward Drach. Guest prizes were won by C. Sippel, J. B. Harty, O. Pabtz and J. Davies. At the banquet which followed M. B. Zimmer, president of the Drug and Chemical Association and Walter H. Jelly, president of the Perfumery, Soap and Extract group, talked briefly regarding the value of the auxiliary and expressed the hope it would maintain its steady growth.

The 14th Annual Convention and Trade Exhibition of the National Hairdressers and Cosmetologists Association at the Edgewater Beach Hotel, September 9th to 13th, was marked by an unusually large attendance and a varied program of business and entertainment. Emil Rohde, who has been the leader in building the association to its present important position, was unanimously re-elected president. Colgate-Palmolive-Peet Co. were represented by a display of their shampoos and toilet soaps. Other manufacturers having booths displaying various types of shampoos were F. W. Fitch Co., Marrow Manufacturing Co. and National Oil Products Co.

Robert C. Teare, vice-president and treasurer of the O'Cedar Corporation, won second highest honors in the Illinois certified public accountant examinations, results of which have just been announced. Mr. Teare will receive the silver medal awarded by the Illinois Society of Certified Public Accountants.

A series of newspaper advertisements for Fitzpatrick Bros., Chicago soap makers, designed by Frederic Bager, Jr., won a prize of $100 in a recent competition of the Association for Arts and Industries.

H. D. Hudson Manufacturing Co., Chicago, are now marketing an electric blower, model number 306, for use with powdered insecticides. This new unit operates by a centrifugal action and is said by the makers to result in greater speed and economy in the use of powdered insecticides.

LEVER PLANT AT HAMMOND REOPENS

The Hammond, Ind., plant of the Lever Brothers Co. was reopened late in September and all employes returned to work following an agreement between company officials and employes. The agreement, it was announced by Bruce Vernon, plant manager, met most of the workers' demands, there was no discrimination against hiring strikers, and seniority rights have been granted. It is indicated that the union is to be recognized by the company. The question of higher wages was left to arbitration between the company and union officials. The workers agreed, however, that no strike would be called for at least another year. The strike was originally called on Aug. 6 last. The plant continued in operation but was closed summarily by the company after there had been riots between strikers and workers in front of the plant.

APPEAL KIRKMAN TAX RULING

Kirkman Holding Corporation and Kirkman & Son Corporation have appealed from a ruling of the Commissioner of Internal Revenue which holds them liable for 1930 income taxes of $151,968.48, and has asked the United States Board of Tax Appeals to grant a review. Involved in the tax dispute is a series of stock trading transactions between the two corporations which, it is claimed, involved a transfer of securities from one to the other. The Kirkman Holding Corporation's good will value is another point of dispute, and it is upon the value that is finally fixed that the principal question will be decided. The Commissioner places it worth at $771,220.33, while the Corporation claims a value of at least $3,500,000. Kirkman & Son Corp. is a unit of Colgate-Palmolive-Peet Co.

During the first six months of 1934 a total of $1,058,404 was spent on radio advertising of soaps and housekeepers supplies, according to a report issued by the National Broadcasting Company. This compares with $476,062 spent in the corresponding period of 1933, and indicates an increase of 122%. Soap, which ranked seventh in the list of industries on the basis of radio broadcasting expenditures in 1933, moves up to sixth position in 1934.

The Furniture and Floor Wax and Polish Code Authority met at French Lick Springs, Ind., Sept. 26th and 27th. Members include H. F. Johnson, Jr., S. C. Johnson & Sons, chairman, G. A. Altenbern, Midway Chemical Co., F. R. Patterson, Miracul Wax Co., J. D. Patton, Pittsburgh Plate Glass Co., W. F. Silbersack, A. S. Boyle Co., I. R. Watts, Visco Chemical Products Co., Irving Wexler, Windsor Wax Co., and B. E. Babbitt, executive secretary.

The loan value per unit of gum rosin and turpentine was increased from $40 to $50, October 5, by the directors of the Commodity Credit Corp.

HEPTYLLYS B

is rapidly being recognized as one of the outstanding aromatic chemicals now being offered to the perfume and soap manufacturers. The reasons for this recognition are that Heptyllys B has a definite, flowery note—a lasting odor—blends readily with other aromatics in compounds — has a greater odor volume than other aromatic chemicals in the same price and odor class—and will not discolor.

Heptyllys B is our trade name for a purified Alpha-Amyl-Cinnamic-Aldehyde.

Upon request we will be glad to submit samples of Heptyllys B.

The Naugatuck Chemical Company

Aromatics Division

1792 BROADWAY **NEW YORK, N. Y.**

PERSONAL AND IMPERSONAL

A. J. Rank of the Prouty-Bowler Soap Co., Des Moines, Iowa, is one of the organizers of the recently formed Iowa Products club, Des Moines, a statewide organization, having for its purpose the promotion of Iowa products. A state and national campaign will be waged to acquaint people with the Iowa label and to popularize Iowa's manufactured products.

S. J. Miller, for some years connected with Fischer's Surfa-Saver, Inc., Cincinnati, is now associated with the manufacturing department of the DuBois Soap Co., Cincinnati.

C. M. Longueil has become district sales manager in the New York area for Fitzpatrick Brothers, Inc., Chicago soap manufacturers and makers of Kitchen Klenzer.

N. R. Sarkar, prominent Indian soap manufacturer and first president of the All-India Soap Makers' Association, has recently been elected Mayor of Calcutta.

Charles Klein, head of Kay Tee Products Co., announces that his concern has leased a building at 814 Bergen St., Brooklyn, where its line of powdered soaps and household cleaners will now be manufactured.

Pan American Soap Co. has been organized in Tampa, Fla., by John H. Boushall, George S. Lenfestly and W. A. Weltka.

Laurel Soap Mfg. Co., Philadelphia, is this year celebrating the twenty-fifth anniversary of the organization of the company. It was in 1909 that William H. Bertolet began to manufacture olive oil soap for textile use. There has been a steadily increasing line of "Laurel" products and for the past few years the company has been selling bulk soaps and other products to the jobbing trade.

The first performance over the air of Procter & Gamble Company's radio musical comedy, "The Gibson Family," was given September 15th over the National Broadcasting circuit.

Colgate-Palmolive-Peet Co. is offering free pictures of movie stars with each purchase of its new product, "Hollywood" toilet soap. The soap is sold exclusively through grocery and department stores at five cents a cake.

Lehn & Fink plan no special advertising campaign in support of "Lysol" soap. Brief mention will be made of the new product on the "Hall of Fame" broadcast sponsored by the company, and it is possible that a special advertising campaign may be started after the first of the year.

Iowa Soap Co., Burlington, Iowa, held the annual picnic of its employes at the Tri-State Fair Grounds near Burlington on Sept. 15. A program of games, contests, and entertainment was arranged running throughout the day. Prizes were awarded the winners at the close of the day by Homer D. Banta, president of the company. E. A. Ray acted as chairman of the general committee, assisted by George Weile, admission, Sam Striegel, transportation, G. A. Smith, games and contests, Fred Howard, baseball, John Hodson, food and refreshments, E. O. Matsch, judging.

Edwin Meredith is president of the newly organized Canadian soap firm, Soap Refiners Limited, whose plant is located at Smiths Falls, Ont. Charles C. Nash is vice-president and managing director and Vaughan B. Bedell is sales manager. The sales subsidiary, Soap Refiners Sales Ltd., is located in Toronto.

Lambert Pharmacal Co., St. Louis, is urging dealers to merchandise its shaving cream in combination with the leading brands of cigarettes. Combination prices are offered with the shaving cream adding 21c to the cost of the cigarettes.

Robert Manley Watson, 34, former sales manager for the "Seventeen" line of Colgate-Palmolive-Peet Company at Chicago, died in a hospital in Miami recently. Mr. Watson who was three times cited for bravery in the World War was a holder of the Congressional Medal. He retired from the Colgate Company, in 1931 following a nervous breakdown.

A soap survey conducted in Atlanta recently by the *Atlanta Constitution*, shows "Lifebuoy" to be the best selling toilet soap, closely followed by "Camay," "Lux" and "Palmolive." Among package soaps, "Octagon" was accorded first selling position. "Octagon" laundry soap also led in its field.

The current advertising campaign used on "Tag" soap by M. Werk Co., Cincinnati, urges the user to test out this laundry soap as a face soap for a limited period to prove its purity and freedom from alkali. *Printers Ink* comments on this campaign in a current issue:

SOAP presents a *perfuming problem* of a special character. To handle it successfully requires intimate knowledge of soap manufacturing and, above all, experience with soap perfumes.

We have done a considerable amount of work along those lines, and offer several series of soap perfumes of *tried worth.*

Send for *smelling samples.*

Almond	Lemon
Almond—Rose	Lilac
Almond—Cocoa	Lily
Antiseptic Odor	Mint
Bouquets of great variety	Narcissus
Carnation	Orange
Cedar	Oriental
Citrella	Patchouly
Cologne	Pine
Fougere	Pineapple
Gardenia	Rose
Geranium	Sandalwood
Girella	Sweet Pea
Jasmin	Verbena
Lavender	Violet

Also many odors for shampoo and liquid soap

van Ameringen-Haebler, Inc.

Aromatic Essentials

315 Fourth Avenue, New York
180 No. Wacker Drive, Chicago
438 West 48th St., Los Angeles
42 Wellington Street, E., Toronto

Factory, Elizabeth, N. J.

"Refreshing, even in these balmy days of soap advertising, is copy appearing in the Middle West for Tag soap. 'Wash your face daily (as often as you wish) with Tag,' reads the copy. 'You'll be amazed to discover that a laundry soap which does such a thorough cleaning job can be so soothing to the skin.' At the end of a week the test comes to an end—no essays to write, labels to save or prizes to win. Apparently the cake of Tag then retires to the laundry, unless it has, in the week, won its place as a permanent toilet accessory."

Following successful test campaigns, Procter & Gamble Company is introducing "Dreft" in 150 mid-western cities with newspaper advertising. "Dreft" is a patented fatty alcohol sulfate product. H. W. Kastor & Sons Co., Chicago, is the agency directing the campaign. "Dreft" is described as soapless, yet having "five times the suds of soaps." The initial advertising campaign is being confined closely to the hard-water districts of the mid-west. In some markets a special deal is being offered, with two cakes of "Camay" soap being given free with each purchase of a package of "Dreft."

Sky High Products, Inc., 1947 West Elston Ave., Chicago, has been formed by Zoll M. Zilberbrand, Bertha Rakita and Rachel Laiken to manufacture soaps

Nostane Products Corp., Brooklyn, has appointed Loewy Advertising Agency, New York, as advertising counsel. This agency will direct campaigns for the following products of the company: "Dr. Brown's tooth powder," "Baby Oil," "Food-Lax" and "Dabon" brushless shaving cream. The campaign on "Dr. Brown's" tooth powder will be released shortly in various out-of-town papers.

J. A. Coulter, vice-president of Colgate-Palmolive-Peet Co., in charge of manufacturing, sailed from New York recently on the *Europa* for a six-weeks' inspection tour of the company's European factories.

Prouty-Bowler Soap Co., Des Moines, is introducing a new grated soap product which will sell under the name of "Tips." The new product will be nationally distributed and advertised.

M. C. Hunt Soap & Chemical Co., Indianapolis, has recently moved to 2829 N. Pennsylvania Ave.

Central Silica Corp., Birmingham, Ala., has issued a folder describing its C S T 128 abrasive base for cleaning and scouring soaps and compounds. This product is especially recommended for household cleansers, mechanics' hand soap and bulk cleansers. C S T 128 is stated to be a white Tripoli of somewhat different form and character than other similar products.

Mt. Hood Soap Co., Portland, Ore., has recently moved to 328 N. W. Glisan St.

Yardley Co., Union City, N. J., has announced plans calling for a one hundred per cent increase in the capacity of its plant. A four-story extension will be added to the Union City plant which is located at Palisade Ave. and 6th St.

Hamilton Piece Dye Works, Paterson, N. J., will be reorganized under the recently enacted bankruptcy act under a new name, Hamilton Piece Dye Co. Permission to effect the reorganization was obtained by three of the leading creditors, Jacques Wolf & Co., Sherman Soap Co. and Aloyx Soap Co.

Oakite Products, Inc., held its annual western sales meeting at the Palmer House, Chicago, September 29, with F. A. Ascon, New York industrial sales manager, and his assistant, J. A. Carter, in charge of the meeting.

Cudahy Packing Co. in a new prize contest is offering $1,000 and 164 other cash prizes for the best letters on the subject, "Why I Prefer To Use Old Dutch."

Gray Magic Products Co., maker of "Gray Magic" cleanser, has established factory headquarters near Seattle, Wash.

McKesson & Robbins, Inc., report net sales for the first eight months of the current year aggregating $81,071,035 as compared with $65,683,338 reported for the corresponding period last year, an increase of $15,387,697, or 23.43 per cent.

Yardley & Co., Ltd., London, has taken over a famous billboard site in Trafalgar Square for advertising display use. This is claimed to be the finest outdoor advertising site in the world and is one of the costliest.

Norwich Pharmacal Company, Norwich, New York, has been elected to membership in the Association of National Advertisers. M. W. Stofer, vice-president in charge of advertising, will represent his company in the A.N.A.

Milwaukee Soap Products Co., Milwaukee, has moved recently to 2114 E. Woodstock Place.

Willard H. Dow, president, and Leroy C. Stewart of Dow Chemical Co., Midland, Mich., spoke at the first fall meeting of the New York section of the American Chemical Society, held at the Chemists' Club, New York, October 5.

Picture Soap Co., formerly located at 161 Canal St., New York, has moved to 11 East 22nd St.

RECORD OF TRADE-MARKS

The following trade-marks were published in the October issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

TRADE MARKS FILED

GRANDPA'S WONDER—This in outline and solid letters describing toilet and laundry soaps. Filed by Beaver-Remmers-Graham Co., Cincinnati, June 4, 1934. Claims use since January 1, 1886.

G. A. CLEANSER—This in solid letters within diamond design describing cleaning preparation. Filed by G. A. Mfg. Co., New York, June 8, 1934. Claims use since Mar. 19, 1934.

SILTEX—This in solid letters describing cleaning compound. Filed by M. Werk Co., St. Bernard, Ohio, July 18, 1934. Claims use since Mar. 26, 1932.

SARONA—This in solid letters describing cleaner. Filed by Schering Corp., Bloomfield, N. J., June 7, 1934. Claims use since Mar. 6, 1934.

FLYGHT—This in solid describing insecticide. Filed by Finishine Laboratories, Syracuse, July 6, 1934. Claims use since Apr. 9, 1934.

HI-LEX—This in outline letters describing cleaning preparation. Filed by Hilex Co., St. Paul, July 16, 1934. Claims use since Apr. 10, 1934.

CELESTE—This in type resembling script on reverse plate describing shampoo. Filed by Celeste Products, Philadelphia, July 20, 1934. Claims use since June 25, 1934.

OSME—This in shaded letters describing bath softener. Filed by Michel Gourland, New York, July 21, 1934. Claims use since May 15, 1934.

EXTERMITE—This in solid letters, with word "Hilts" in script, describing insecticides. Filed by Hilts Laboratories, Honolulu, Hawaii, June 11, 1934. Claims use since Mar. 30, 1934.

LORO—This in solid outlined letters describing insecticides. Filed by Grasselli Chemical Co., Cleveland, July 28, 1934. Claims use since July 18, 1934.

JAPTOX—This in solid outlined letters describing insecticides. Filed by Mechling Bros. Chemical Co., Camden, N. J., July 31, 1934. Claims use since June 2, 1933.

CELLONIZE—This in solid letters with silhouette of streamlined automobile, describing auto and furniture polish. Filed by Cellonize Products Co., Des Moines, June 22, 1934. Claims use since May 25, 1934.

CALGONITE—This in solid letters describing cleanser. Filed by Calgon, Inc., Pittsburgh, Apr. 17, 1934. Claims use since Apr. 2, 1934.

GRASSELLI—This in broken letters describing detergents. Filed by Grasselli Chemical Co., Cleveland, June 30, 1934. Claims use since 1914.

LIL-LEE—This in solid letters describing polishes and cleaners. Filed by York Co., St. Louis, July 11, 1934. Claims use since March, 1933.

DOGGIE'S OWN SOAP—This in solid letters describing dog soap. Filed by Mercirex Co., Milford, Del., July 18, 1934. Claims use since June 20, 1934.

A PLUS—This in solid letters describing soap. Filed by White King Soap Co., Los Angeles, Aug. 9, 1934. Claims use since July 23, 1934.

MINTSODENT—This in cross-hatched letters describing tooth paste and mouth wash. Filed by Guy C. Buxton, Chicago, June 27, 1934. Claims use since June 1, 1933.

ESQUIRE—This in solid letters describing brushless shaving cream. Filed by Daly Products Co., New York, June 27, 1934. Claims use since June 12, 1934.

TASSO—This in solid letters describing cleaning preparation. Filed by Tasso Co., South Bend, Ind., July 3, 1934. Claims use since November, 1933.

GREEN LITE—This in solid letters with sketch of traffic light, describing hand soap and cleaner. Filed by Green Lite Laboratory, Northampton, Pa., July 18, 1934. Claims use since Feb. 19, 1932.

THE SUNTAN DON'T SHAVE OFF—This in solid letters describing shaving cream. Filed by Robert Williamson Storrs, Jr., Richmond, Va., Aug. 10, 1934. Claims use since Aug. 3, 1934.

CURAQUA—This in solid letters describing germicide and antiseptic. Filed by Rutherford Laboratories, Rutherford, N. J., Mar. 29, 1934. Claims use since Mar. 12, 1934.

DR. BROCK'S 5 POINT TOOTH POWDER—This in outline letters describing tooth powder. Filed by Benjamin Brock, Buffalo, Apr. 10, 1934. Claims use since Mar. 24, 1934.

ANBESOL—This on reverse plate describing antiseptic. Filed by Gum-num Co., Newark, June 28, 1934. Claims use since Mar. 1, 1933.

FLEET-WING—This in solid letters with silhouette of flying bird, describing insecticides and cattle sprays. Filed by Fleet-Wing Corp., Cleveland, July 21, 1934. Claims use since November, 1923.

CHARM—This in solid outlined letters, with word "feminine" in script and sketch of woman, describing antiseptic powder. Filed by Universal Laboratories, Dallas, July 21, 1934. Claims use since July 16, 1934.

FUMADISCS—This in solid letters describing deodoriz-

ers. Filed by Cando Corp., Cambridge, Mass., July 26, 1934. Claims use since July 20, 1934.

TRADE MARKS GRANTED

316,665. Cleaning and Polishing Compound. Millway Manufacturing Co., Detroit. Filed April 23, 1934. Serial No. 350,348. Published June 26, 1934. Class 4.

316,763. Germicide, Deodorant and Disinfectant. Acme Chemical Co., Milwaukee. Filed April 23, 1934. Serial No. 350,303. Published June 26, 1934. Class 6.

316,765. Shoe Polish. Atlas-Irmaline Co., Chicago. Filed April 21, 1934. Serial No. 350,281. Published June 26, 1934. Class 4.

316,773. Dog Shampoo and Germicide. Dogglow Products, New York. Filed April 17, 1934. Serial No. 350,119. Published June 26, 1934. Class 6.

316,816. Disinfectant, Germicide, Insecticide, and Antiseptic. Creolin Co., Rahway, N. J. Filed April 28, 1934. Serial No. 350,619. Published June 26, 1934. Class 6.

316,835. Water Softener. Garden City Paint & Varnish Co., Chicago. Filed April 28, 1933. Serial No. 337,256. Published June 26, 1934. Class 6.

316,839. Shaving Cream. Lambert Pharmacal Co., Wilmington. Filed December 22, 1932. Serial No. 333,291. Published June 26, 1934. Class 4.

316,853. Moth Balls and Flakes. Reilly Tar & Chemical Corp., Indianapolis. Filed May 5, 1934. Serial No. 350,971. Published June 26, 1934. Class 6.

317,117. Detergent. Hygienic Products Co., Canton, Ohio. Filed April 19, 1934. Serial No. 350,191. Published July 3, 1934. Class 4.

317,118. Detergent. Hygienic Products Co., Canton, Ohio. Filed April 19, 1934. Serial No. 350,192. Published July 3, 1934. Class 4.

317,126. Soap Powder. Strong, Carlisle & Hammond Co., Cleveland. Filed April 16, 1934. Serial No. 350,021. Published July 3, 1934. Class 4.

317,158. Livestock Spray, Disinfectant and Dip, Cresylic Disinfectant, Poultry Mite Paint Used Primarily as An Insecticide, and Creosote Oil. Eastern States Farmers' Exchange, West Springfield, Mass. Filed April 28, 1934. Serial No. 350,631. Published July 10, 1934. Class 6.

317,202. Liquid in Which Insecticidal and Germicidal Agents are Dissolved for Spraying and Materials of Like Character in which Perfumed Deodorants Are Dissolved. Noxon Chemical Products Co., Newark. Filed April 19, 1933. Serial No. 336,954. Published July 3, 1934. Class 6.

317,255. Insecticide. Murdico, Inc., Los Angeles. Filed April 17, 1934. Serial No. 350,104. Published July 3, 1934. Class 6.

317,258. Deodorant, Germicide, Etc. Hygienic Products Co., Canton, Ohio. Filed April 19, 1934. Serial No. 350,193. Published July 3, 1934. Class 6.

317,320. Toilet Soap, Shaving Soap, Shaving Cream, and Shampoo Soap. Colgate-Palmolive-Peet Co., Jersey City. Filed March 24, 1934. Serial No. 349,072. Published July 10, 1934. Class 4.

317,325. Moth Eliminating and Mothproofing Product. Murdirco Inc., Los Angeles. Filed April 17, 1934. Serial No. 350,102. Published July 3, 1934. Class 6.

317,342. Insect Powders. Goldwin Smith, Tampa, Fla. Filed May 7, 1934. Serial No. 351,037. Published July 17, 1934. Class 6.

SODIUM PERBORATE

(*From Page* 27)

to 40 or 50 gallons of ordinary soap solution. Wash at a temperature not over 100° F. and rinse. This treatment removes stains. If any yellowing of the fabric occurs, rinse the goods for a short time in water containing a little sodium hyposulfite. For badly stained garments, the amount of perborate may be increased up to 2 pounds without danger of tendering. A longer time of treatment should be given. A "woolen wash wheel" should be used for woolen goods or flannels in order to minimize shrinkage. If the usual rotary wheel is used, it should be run very slowly, as friction is the main cause of shrinkage.

With cotton, linen and rayon goods perborate may be used for both white and colors, and is particularly recommended for dyed materials and striped or patterned goods. With wool and silk, it is recommended for white articles. It may also be used for colored garments provided the dyes are fast to the treatment.

Textile Uses

IN THE textile industry sodium perborate is recommended as a bleach for fine laces, velvet, plush, pure and weighted silks, printed goods, etc. Sodium perborate is milder in its action than ordinary hypochlorite preparations. It may be used as an addition to the liquors for scouring shirtings and other goods containing vat-dyed stripes, since it not only prevents bleeding and marking-off but also assists in developing a good white in the background. It may be added to the soap liquors employed in scouring natural silk, rayon or mixed fiber stockings and other hosiery goods before dyeing, thus removing stains and giving a level and improved ground.

The increasing demand for colors fast to light, bleaching and washing, in modern household and dress fabrics, has led to a remarkable development in the use of vat dyes for dyeing and printing, because these dyes have outstanding fastness properties. The fixation of these colors in textile materials involves an oxidation process. Sodium perborate has several advantages over other oxidizing agents for this purpose and many British firms use it exclusively. Not only does it develop and fix the colors readily, but simultaneously it gives an excellent and contrasting white in the background of printed goods. If a bichromate bath is used for very rapid oxidation of vat dyes on printed fabrics, it should be fol-

The Modern Successor to Citronella

Javollal offers all the advantages of Oil of Citronella with none of its disadvantages. It is stronger than the natural oil. Its odor is cleaner, pleasanter . . . in every way more attractive. Besides replacing citronella more efficiently and economically, it is a splendid perfume for all technical products such as soaps (solid or liquid), hand cleaning compounds, petroleums, disinfectants and insecticides.

"Fragrance Creates Sales Appeal"

FRITZSCHE *Brothers, inc.*

164 SO. CENTRAL AVENUE, LOS ANGELES, CAL.

Proprietors of PARFUMERIES de SEILLANS, Seillans, France
FRITZSCHE BROTHERS, of Canada, Ltd., 77-79 Jarvis St., Toronto, Canada

78-84 BEEKMAN STREET
NEW YORK, N. Y.
118 WEST OHIO ST. CHICAGO, ILL.

lowed by a bath of perborate. This completes the oxidation before soaping and avoids loss of residual reduced color in the soap bath. At the same time it gives a greater brightness of white ground than is usually obtained with bichrome alone.

Too rapid oxidation occasionally leads to the deposition of mechanically loose dye on the surface of the goods, which will give trouble in marking-off during the subsequent processing of the fabric. Excellent results are obtained by the use of perborate alone.

Sodium perborate is an important ingredient of many laundry soaps, bar soaps, and household washing powders made in Great Britain and elsewhere in Europe. Some of these contain more than 20 per cent by weight of perborate. Some of them combine perborate with soda ash, silicate, or phosphate. Besides its applications in the laundry and textile industries, perborate is employed in many other processes such as the electro-plating of tin, nickel and zinc, the manufacture of cosmetics and dentifrices, the bleaching of oils, waxes and glues, the production of soluble starch, and as an antiseptic in medicine.

PERFUMES IN HOUSEHOLD SOAPS

In perfuming household soaps, usually 1/6 to 1/4 per cent of the cheaper classes of perfumes is used. Such an amount of the more volatile perfumes such as mirbane, pine, wintergreen and citronella do not last long. A method for using stable perfumes without increasing the cost has been devised. In a perfume mixture, 15 per cent of the perfume proper gives very much more than its normal effect if backed by 60-65 per cent of naphthalene, the balance being made up of fixatives like benzyl benzoate. The naphthalene masks the soapy odor and is in turn masked by the fixatives. With such a ground, the ultimate perfume stands both exposure and washing conditions well.

The following mixtures are used to the extent of 1/5 to 1/4 per cent:

	%	%	%	%
1. Ground—Naphthalene	62	62	62	62
Fixative—Diethyl phthalate	8	12	—	12
Dinitrobenzene	8	—	12	12
Benzyl benzoate	8	12	12	—
Perfume—Musky xylene	8	8	8	8
Diphenyl oxide	6	6	6	6
2. Naphthalene	62	62	62	62
Dinitrobenzene	8	—	11	11
Benzyl benzoate	7	11	11	—
Diethyl phthalate	7	11	—	11
Musk xylene	8	8	8	8
Diphenyl oxide	6	6	6	6
Ionone	2	2	2	2
3. Naphthalene	64	64	64	64
Dinitrobenzene	12	12	—	—
Diethyl phthalate	12	12	24	24
Diphenyl oxide	7	7	7	7
B—naphthol ethyl ether	5	2.5	5	2.5
B—naphthol methyl ether	—	2.5	—	2.5

R. L. Datta and Tinkari Basu, *Soap Trade Rev.* **7,** No. 8, 8-9 (1934).

The index of employment in the soap industry registered 98.6 in August, 1934, as compared with 97.7 in July and 96.6 in August, 1933. The pay-roll index for August, 1934, was 86.1, as against 84.3 for July and 75.3 for August, 1933.

New Patents

Conducted by

Lancaster, Allwine & Rommel

Registered Attorneys

PATENT AND TRADE-MARK CAUSES

815 15th St., N. W., Washington, D. C.

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine and Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 1,969,387, Cleansing and Polishing Preparation, Patented August 7, 1934, by Joseph A. Tumbler, Baltimore, Md., assignor to J. A. Tumbler Laboratories, Baltimore, Md. A polishing emulsion containing water, petroleum oil, a finely divided air blown castor oil held undissolved and in suspension in the petroleum oil, a water soluble soap, the castor oil and petroleum being emulsified in the water and in the presence of the water soluble soap.

No. 1,969,491, Insecticide, Patented August 7, 1934, by Elmer W. Adams, Hammond, Ind., assignor to Standard Oil Company, Whiting, Ind. A composition capable of forming a stable emulsion with water and effective as an anti-parasitic spray for plants and trees, comprising a light petroleum oil, preferentially oil soluble sulfonates derived from sulfuric acid-treated mineral oil, and a small amount of creosote.

No. 1,971,375, Soap, Patented August 28, 1934, by Lester F. Hoyt, East Aurora, N. Y., assignor to Larkin Co., Inc., Buffalo, N. Y. A soap in paste form, including from 10% to 50% of a soap formed of a hydroxyalkylamine and a fatty acid of a relatively soft fat or oil, from 15% to 60% of soap formed of potash and a relatively soft fat or oil, and having a moisture content of from 10% to 35%.

No. 1,971,566, Powdered Soap, Patented August 28, 1934, by Willis A. Hutton, Tacoma, Wash., assignor to W. A. Hutton & Company, Seattle, Wash. The method of producing a soap powder which consists in placing heated liquid soap under a high pressure of from one thousand to three thousand pounds per square inch and directing a finely divided spray of the heated liquid soap into a centrifugal drying chamber through which a whirling blast of heated air is continuously passed.

The city of Wilkes-Barre, Pa., celebrated last month the fiftieth anniversary of the foundation by Fred M. Kirby and G. S. Woolworth of the first forerunner of the present five-and-ten-cent store.

for YOUR PRIVATE LABEL

SPECIAL CLEANSERS

Our list includes the most efficient cleanser compounded for your particular trade.

SUPER ALKALIES

These are products which are adapted for special uses where stronger alkalies are required.

SNOWFLAKE CRYSTALS

The accepted base for quality bath crystals.

SCOURING COMPOUND

An effective abrasive product for cleaning floors, marble, etc.

PARADICHLOROBENZENE

This exceptionally pure product is an excellent deodorant and moth preventive.

ORTHODICHLOROBENZENE

For insecticide sprays and metal polishes.

PUT Solvay quality into your packages and get more out of your private brand. Write for Booklet SC7 for particulars on products for your special trade.

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

61 BROADWAY NEW YORK

SOLVAY PRODUCTS

STEAR-IC ACID

RED OIL
TALLOWS

Controlled Production:

We collect, render and refine all of the raw materials used in our stearic acid and red oil. This close control, not available in any other brand, insures high quality products by eliminating low grade raw materials. Let us submit samples and prices. There is no substitute for quality. Use them in your

Dry Cleaning Soaps
Shaving Soaps
Special Cleaners
Polishes
Liquid Soaps

FANCY - EXTRA and SPECIAL TALLOW
Fatty Acids

THEOBALD
ANIMAL BY-PRODUCTS REFINERY

KEARNY, N. J.
ESTABLISHED 1914

CONTRACTS AWARDED

Unity Sanitary Supply Co., New York, has been awarded a contract for 10,000 cakes toilet soap for the Philadelphia engineer at a price of $6.00 per 100 lbs. Armour & Co., Philadelphia, awarded 10,000 cakes laundry soap at $3.44 per 100 lbs.

In a recent U. S. Treasury Department bidding on soaps and cleaners, low quotations were entered as follows: 9,180 lbs. toilet soap, Hewitt Bros. Soap Co., 9.2c.; 31¼ lbs. hand soap, Armour & Co., 8.1c.; 11,825 lbs. cleaner, DuRite Chemical Co., 2.75c.; 23,100 lbs. sal soda, Peebles Chemical Co., 0.95c.; 2,600 lbs. powdered soap, Colgate-Palmolive-Peet Co., 5.25c., and 7,002 lbs. scouring compound, Swift & Co., 1.4c. and 2.12c.

Colgate-Palmolive-Peet Co., Jersey City, has been awarded a contract covering 4,000 lbs. toilet soap for the Fort Sam Houston Quartermaster at a price of 6.266c.

Swift & Co., San Antonio, Texas, has been awarded a contract for 252,000 lbs. laundry soap for Fort Sam Houston U. S. Army Quartermaster at a price of 3.0333c. Newell-Gutradt Co., San Francisco, awarded 7,000 cakes grit soap at 3c. and 7,000 cakes at 2.5c. Armour & Co., San Antonio, awarded 5,280 cans scouring powder at 2.693c. Colgate-Palmolive-Peet Co., Jersey City, awarded 15,300 cakes white floating soap at 2.35c.

Colgate-Palmolive-Peet Co., Jersey City, has been awarded a contract on 72,000 lbs. laundry soap for Fort Sam Houston U. S. Army Quartermaster at a price of 3.007c. R. N. Haas-Conray Products Co., New York, awarded 2,000 cakes grit soap at 3.7c. Hunnewell Soap Co., Cincinnati, awarded 2,000 cakes grit soap at 3c. B. T. Babbitt Co., Washington, awarded 15,088 cans caustic soda at 4.98c. No bids were entered on 2,758 cakes stove polish.

Kranich Soap Co., Brooklyn, was low bidder on 27,600 lbs. castile soap for Sewall's Point and Pensacola in a recent S. & A. Aero bidding, with a price of $2,177.48 and was low also on 28,300 lbs. for Western yards at $2,378.10. Armour & Co., Chicago, bid low on 25,000 lbs. chip soap for Philadelphia and Sewall's Point with $1,431.25, and was also low on 250 lbs. toilet soap with a price of 7.6c. lb. Pioneer Soap Co., San Francisco, bid low with $1,269 on 24,000 lbs. chip soap for Mare Island and Puget Sound. Day & Frick, Phila., bid low with $1,218.94 on 35,300 lbs. grit soap for Eastern Yards, $279.52 on 8,400 lbs. additional for the same and $383 on 13,000 lbs. for San Diego and Mare Island. Newell-Gutradt Co., San Francisco, entered the low price of $1,357 on 41,000 lbs. grit soap for Western yards. General Soap Co., San Francisco, bid low with $3,757.50 on laundry soap for Eastern yards, $1,401.20 on laundry soap for Western yards, and was low with $325 on 6,000 lbs. toilet soap for San Diego and Mare Island. R. M. Hollingshead Corp., Camden, entered low bids of $750.71 and $207.20, respectively, on quantities of liquid soap for Eastern and Western yards. Procter & Gamble, Cincinnati, bid low with $108.20 on 1,200 lbs. toilet soap for San Diego and Mare Island and $1,335.43 on a quantity of toilet soap for Eastern yards.

James Good, Inc., Philadelphia, has been awarded a contract covering 5,000 lbs. naphthalene flakes for Philadelphia U. S. Army Quartermaster at a price of $5.23.

Colgate-Palmolive-Peet Co. has been awarded contracts as follows in a recent Brooklyn U. S. Army Quartermaster's bidding: 20,400 cakes toilet soap for Phila., 1.02c.; 21,600 cakes for New York, 1c.; and 27,600 cakes for New York at 1c. Armour & Co., awarded 50,400 cakes for Chicago at 1.055c. Equitable Laboratories awarded contracts for tubes of shaving cream as follows: 20,400 tubes for Phila., 4.25c.; 21,600 for New York, 4.21c.; 50,400 for Chicago, 4.29c., and 27,500 for New York, 4.21c.

Solvay Sales Corp. has opened an office in Houston, Texas, in the Petroleum building. The new plant at Baton Rouge, La., is expected to be in operation early in 1935.

The Ludeke Co., Newton, Mass., national distributors of the "Herndon" semi-automatic capping machine, announces the appointment of Package Associates, 407 Pico St., Los Angeles, as representatives for the states of California, Oregon, and Washington.

Dodge & Olcott Co., New York, announces a reduction in the price of "Maywood" vanillin as follows: oil made from eugenol, 5 lb. cans, $4.25 per lb., and 100 lb. lots, $4.00 per lb.; oil made from guaiacol, 5 lb. cans, $4.00 per lb., 100 lb. lots, $3.75 per lb.

American Dental Association has declined to place "Pepsodent" tooth paste on its approved list because of "unwarranted and misleading assertions in the advertising of the company."

Market Report on

TALLOW, GREASES, AND OILS

(*As of October* 8, 1934)

NEW YORK—Soapmaking oils, fats and greases scored substantial advances this period, with domestic fats making the greatest gains again, although this period coconut oil shared in the forward move. The advance here was due to a sharply increased quotation for copra. European buyers have taken unusually large amounts of copra in recent months, and when American refiners of coconut oil again entered the market recently, sharply higher prices were forced. Tallow, grease, corn oil, stearin and oleo oil were other items which registered substantial advances.

COCONUT OIL

With domestic fats advancing over the past few months, the margin between their prices and the new price of coconut oil, including the tax, has steadily narrowed to the point where domestic fat users are again in position to use coconut oil. The stage was set this past month, and coconut oil which has not been active for several months moved up sharply. An important factor in its advance was the fact that European buyers have bought copra heavily in recent months and additional demand for the raw material forced prices up sharply. The current market for coconut oil is practically nominal. New York tanks are quoted at 3⅜c. lb., more than half a cent above the price of a month back.

CORN OIL

Corn oil also advanced this period, gaining a cent a pound and being quoted currently at 7½c. for crude in tanks. The commodity markets have recovered somewhat in recent weeks, and with the strength of competing product the advance in corn oil was entirely in order.

COTTON OIL

With seed quotations advancing and prices of other domestic oils on the rise, cotton oil followed the path of least resistance and also moved upward in a quiet market. Crude is quoted currently at 7 to 7¼c. lb.

GREASE

Grease quotations advanced a quarter of a cent a pound this period in a comparatively quiet market. Yellow and house grease are quoted currently at 4¾c. lb.

TALLOW

Tallow prices moved a half cent a pound higher this period in a market which showed more interest on the part of buyers and less pressure on the selling side as offers from producers tapered off. The current market on city extra is 5⅜c. lb. Prices abroad are also reported higher.

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Metal Package Corporation, New York, announces a consolidation with the National Can Company, of Boston. The National Can Company was established in 1901 with factories at Boston, and it has over a period of thirty-four years engaged in the manufacture of a general line of tin cans for commercial purposes. It is stated that there will be no change of management or personnel, and the Boston interests will hereafter be conducted as a division of the Metal Package Corporation, which now operates plants at Baltimore, Brooklyn, New York City, Chicago and Hamilton, Ohio.

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A. E. Starkie Company announces a change of address to 1645 S. Kilbourn Avenue, Chicago. Telephone: Lawndale 6020.

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United Drug Co., inaugurated a coast to coast radio broadcast program, October 14, over the network of the National Broadcasting Co.

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FATS HIGHEST SINCE APRIL, 1931

The price index for oils and fats for the month of September, 1934, shows prices to be higher than at any time since April, 1931, according to the Bureau of Raw Materials for American Vegetable Oils and Fats Industries. The average price index for 23 oils and fats was 85.3 for the month of September as compared to 77.2 in August and 74.2 a year ago. The index numbers of the various oils and fats for the months of August and September, 1934, were as follows:

	September 1934	*August* 1933
Castor oil	97.3	97.3
Corn oil	124.8	111.8
Lard	73.5	56.3
Oleo oil	103.3	71.8
Peanut oil	92.6	80.0
Soybean oil	109.3	109.3
Chinawood oil	118.1	115.2
Coconut oil	41.0	38.6
Cod oil	83.9	86.0
Grease	76.8	67.8
Herring oil	46.8	46.8
Linseed oil	104.5	109.7
Menhaden oil	76.4	67.4
Olive oil	101.0	101.0
Olive oil foots	100.5	100.0
Palm oil	40.3	32.5
Palm kernel oil	34.4	36.2
Rapeseed oil	59.5	60.0
Sesame oil	112.0	87.2
Stearin, oleo	87.7	62.2
Tallow	68.5	60.3
Whale oil	103.4	103.4

The price index number for cottonseed for the month of September, 1934, was 143 as compared to 116 for the month of August, 1934. The price index number of flaxseed was 104 in September, the same as in August. The price index number of K grade rosin was 73.2 in September as compared to 73.8 in August, and the index for turpentine declined from 81.6 in August to 79.7 in September.

Market Report on

SOAP AND DISINFECTANT CHEMICALS

(*As of October 8, 1934*)

NEW YORK—The Market for soap and disinfectant chemicals was somewhat stronger this period—a normal seasonal development. Labor troubles which have cut down activity in a number of lines were less conspicuous this period, while resumption of fall production schedules in other fields stepped up consumption of chemicals. The 1935 contract prices on alkalis have been announced as the same which applied through 1934, and it is reported that alkali producers are now definitely soliciting contracts on this basis.

Alkalis

The same schedule of prices will apply on 1935 contracts for caustic soda and soda ash, as held through 1934, according to an announcement a few days ago. Packaged soda ash will thus range from $1.23 to $1.50 per 100 lbs. on contract, with caustic soda at $2.25 for liquid, $2.60 for solid and $3.00 for flake in carload lots on contract. Early this period a reduction of 1c. per lb. was announced in the price of caustic potash. Solid is now quoted at 6¼ to 6½c. per lb., with flake at 7c. to 7¼c. per lb.

Coaltar Chemicals

Prices of coal-tar derivatives held firm this period as further slackening of activity at the coke ovens reduced the pressure on sales forces to move material into users' hands. Cresylic acid and cresols were maintained at unchanged levels.

Glycerin

Quotations on glycerin were higher this period, as the cost of production of the refined grades has been advanced by the continued rising cost of crude. With consumption taking stocks off the market as fast as they are supplied, there seems to be little prospect of any weakening of prices. C. P. is quoted at 14c. to 14½c., with dynamite at 13¾c. to 14¼c.

Rosin

Rosin prices fluctuated only mildly this period, with most grades advancing ten or fifteen cents a barrel. A strengthening factor in the market came with the announcement that the Commodity Credit Corporation would now lend $50 rather than $40 per unit of naval stores.

—♦—

A. D. Rettinger, for some years associated with the Colgate-Palmolive-Peet Co., Ltd., of Canada, at Toronto, has become vice-president and general manager of the J. T. Robertson Co., Syracuse, N. Y., soap manufacturers. H. F. Robinson is still president and W. W. Robertson, treasurer. Control of the firm is stated to remain with the Robertson family.

Caustic potash prices were reduced sharply late in September to a new base price of 6¼c. per pound for 88/92 KOH as compared with 7⅛c. basis previously. The threat of an additional American manufacturer entering the field is reported to be behind the sharp reduction in price.

—♦—

DETERGENTS FOR DAIRY INDUSTRY

(*From Page 19*)

amount of the residue from the bottles is held in suspension, due to the flocculent nature of its calcium salts formed by reaction with calcium from milk, and due to its colloidal nature in general.

WHEN hard waters are used for cleaning dairy equipment, the carbonate detergents are not to be recommended, as their use tends to promote the formation of milk stone. The calcium carbonate formed in hard water is a relatively heavy precipitate which settles out on the equipment to form a hard, high-ash milk stone. When trisodium phosphate or sodium metasilicate are used in hard water, the precipitate formed is very flocculent. It does not settle out but is carried away with the wash liquid.

Milk stone varies considerably in composition. If the deposit consists mainly of milk solids, the application of an alkaline detergent solution at 120°-130° F. usually suffices for its efficient removal. If the deposit is the result of heat coagulation of milk protein and minerals in combination with precipitated salts from the washing liquid, treatment with alkaline detergents may not be satisfactory. Acid may then have to be used. Although milk stone can be removed from equipment, prevention of its formation is preferable.

Caustic soda may be effective in combination with alkaline salts for bottle washing, but it cannot be used on many types of dairy equipment, due to its corrosive nature. Tin plated iron and tinned copper are very badly corroded by free caustic soda. The same metals are corroded to a lesser degree by soda ash and trisodium phosphate. Sodium metasilicate is the least corrosive to tinned equipment but occasionally this has also been found to corrode tin. Aluminum is attacked markedly by caustic soda, trisodium phosphate and soda ash. Brass, bronze and ambrac are tarnished by the various alkalies. Nickel and Monel metal are very resistant to the action of these detergents. The 18-8 chrome-nickel steels are entirely resistant.

In selecting a detergent even in a limited field such as the dairy industry, it becomes evident that it is necessary to consider the conditions of use, as well as the particular cleansing to be accomplished.

GERANIUM ARTIFICIAL

Saves up to 50% in soap perfuming!

USE Geranium, Artificial, in place of or in combination with Geranium Oil and save up to 50% or more of your soap perfuming costs. Our Geranium, Artificial, has a very fine odor value and the same Rhodinol content as the pure oil. It is a completely satisfactory substitute. With Geranium prices high, this is the time to investigate this excellent product. May we submit samples and quotations?

POLAK'S FRUTAL WORKS, INC.

350 WEST 31st STREET, NEW YORK CITY

Perfuming Specialties for Soaps and Sanitary Products

for 96 years

Importers Dealers Brokers

We have been supplying raw materials to the Soap and Allied Industries

OLIVE OIL, all grades
OLIVE OIL FOOTS

Fatty Acids, Animal and Vegetable
Cottonseed Soapstock **Boiled-Down Cottonseed Soap**

Neatsfoot Oil	Rapeseed Oil (Undenatured)	Tallow	Trisodium Phosphate
Coconut Oil	Castor Oil	Red Oil	Caustic Potash
Cottonseed Oil	Sesame Oil	Soap Colors	Carbonate Potash
Palm Kernel Oil	Lard Oil	Chlorophyll	Bath Powder
Stearic Acid	Palm Oil	Soda Ash	Modified Soda
Oleo Stearine	Corn Oil	Sal Soda	Caustic Soda
Soya Bean Oil	Peanut Oil	Talc	Silicate of Soda
Palm Kernel Oil (English or German Denatured)	Grease (Animal)		Meta Silicate and Metso

"CEREPS" *Superfatting Neutralizing Agent*

Write for Information and Samples.

WELCH, HOLME and CLARK CO., Inc.

563 Greenwich St. **New York City**

Established 1838

Market Report on

ESSENTIAL OILS AND AROMATICS

(*As of October* 9, 1934)

NEW YORK—Mixed price movements featured the market for essential oils and aromatic chemicals this period, with no very definite trend in either one direction or the other. Dealers seemed to be moving quotations around in an attempt to attract business, with the increasing value of the dollar in exchange giving them some prospect of securing early replacement stocks at lower figures. A number of oils seemed to be pointed higher on a long range basis, however, as short crops are quite general. The market was thus a complex and spotty affair with the long range trend definitely upward, although short range factors allowed a number of deviations from the general pattern.

ANISE OIL

Anise oil was firmly maintained at 42 to 45c. pound, as rising silver prices forecast higher import costs.

BERGAMOT OIL

Bergamot prices were moderately lower at the close of this period, reflecting a similar movement abroad. The inside figure is $1.40 per pound, with the usual broad range prevailing. Stocks are ample.

BOIS DE ROSE

Both Brazilian and Cayenne oil advanced this period, with the latter grade being in very small supply. The inside quotation here is $2.90 per pound.

CANANGA OIL

Canaga prices advanced rather sharply this period, with stocks being reported as very light. The lowest offer was in the neighborhood of $2.20 per pound for native oil.

CITRONELLA OIL

Java oil was quoted lower in some quarters this period, with the inside quotation being 32c. pound and the range extending up to 40c.

GERANIUM OIL

Lower prices were quoted on geranium oil this period in some quarters, although there seemed to be nothing in the situation to warrant any reduction. Algerian oil could be had as low as $5.25, with Bourbon oil inside at $4.85.

LAVENDER OIL

With indications that the current crop will be of decidedly smaller proportions than usual, lavender quotations are pointing upward. The inside quotation moved up five cents a pound this period and more substantial advances are reported to be in prospect on the better grades.

◆

Magnus, Mabee & Reynard, Inc., New York, has issued a new catalog and price list on essential oils, aromatics, etc., as of September-October, 1934.

Julius Schindler Refinery, Hamburg, white oils, represented in United States by S. Schwabacher & Co., is adding another tanker to its fleet which will number six vessels when the new vessel is completed.

◆

A new brushless shaving cream will be introduced on a national scale this fall by Colgate-Palmolive-Peet Co. A survey has been in progress this summer in New Haven and Hartford, Conn., to test out consumer acceptance for the new product. The test indicated that a good resale could be expected as 78 per cent of the first buyers, when questioned, stated that they either had purchased second tubes or intended to.

◆

Stockholders of Continental Can Co. have been asked to vote, October 15, on a proposal to increase the authorized capitalization of the company from 2,000,000 to 3,000,000 shares, with a 50% stock dividend paid to holders of record October 15. The board proposes after the split-up to establish a quarterly dividend of 60c. a share on the new stock as compared with 75c. on the old shares.

◆

ALBERT VERLEY IN U. S.

Dr. Albert Verley, head of Etablissements Albert Verley, Paris, France, arrived in New York on the *Olympic*, October 2nd. After making a short visit to the New York offices of Albert Verley, Inc., his American representatives, where he was received by L. J. Zollinger, he immediately left for Chicago where he was to confer with David A. Bennett, president of Albert Verley, Inc. Dr. Verley expected to return to New York and make a short stay before sailing again for France. Dr. Verley enjoys a long-standing reputation both in America and abroad as an authority on synthetic aromatic specialties. The newest development in this field for soap makers is Nerol, recently offered for the first time to soapers by the Verley organization.

◆

GIVAUDAN TESTING ODOR REACTIONS

Givaudan-Delawanna, Inc., New York, through its house organ, the *Givaudanian*, is conducting a test to determine reactions of the average person to various odors. Readers are asked to check questionnaires telling whether they like, dislike or have a neutral reaction to the odors of a list of products which include auto polish, dry cleaning fluid, floor wax, furniture polish, moth balls, metal polish, shoe polish, etc. Tabulations will be presented in an early issue of the *Givaudanian*. Those interested in filing questionnaires may obtain blanks by addressing Givaudan-Delawanna, Inc., at 80 Fifth Ave., New York.

PERFUME BASES for SOAPS

Jasmin	Chypre	Sweet Pea	Rose
Lilac	Gardenia	Bouquets	Lemon

Prices Range to Suit Your Requirements

Quality Guaranteed

Whether you pay 75c or $10.00 per pound, we give the same careful consideration to your orders and always guarantee the quality of our products.

Let us help you with your odor and price problems as our services and samples are yours for the asking without cost to you.

BUDD AROMATIC CHEMICAL CO., INC.
667 WASHINGTON ST., NEW YORK
Essential Oils, Compound Specialties, Aromatic Chemicals

U. S. REPRESENTATIVES: N. V. POLAK & SCHWARZ'S ESSENCE-FABRIKEN

USE STAUFFER BRAND

Carbon Tetrachloride

in your liquid cleaners

STAUFFER BRAND Carbon Tetrachloride will make a good cleaner better. It is 99.9% pure, the purest obtainable anywhere, is water white and is absolutely free from residue or residual odor. May we work with you when you are next in the market? Let us submit samples and prices. Anything from a drum up.

Also producers of
CAUSTIC SODA

STAUFFER CHEMICAL COMPANY

Plants
Niagara Falls, N. Y.
Los Angeles, Cal.

Office
420 Lexington Ave.
New York City

CURRENT PRICE QUOTATIONS

(*As of October* 8, 1934)

Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

Acetone, C. P., drums	lb.	.08½	.10
Acid, Boric, bbls., 99½%	ton	95.00	100.00
Cresylic, 97½ dk., drums	gal.	—	.55
97-99%, pale, drums	gal.	—	.60
Oxalic, bbls	lb.	.11	.11¼
Adeps Lanae, hydrous, bbls	lb.	.14	.15
Anhydrous, bbls	lb.	.15	.16
Alcohol, Ethyl, U. S. P., bbls	gal.	2.45	2.69
Complete Denat., No. 5, drums., ex. gal.		.34	.42
Alum. Potash lump	lb.	.03	.03¼
Ammonia Water, 260, drums, wks	lb.	.02½	.02¾
Ammonium Carbonate, tech., bbls	lb.	.08	.12½
Bleaching Powder, drums	100 lb.	1.75	2.35
Borax, pd., cryst., bbls., kegs	ton	50.00	55.00
Carbon Tetrachloride, car lots	lb.	—	.05¼
L. C. L.	lb.	.06	.08½
Caustic, see Soda Caustic, Potash Caustic			
China Clay, filler	ton	10.00	25.00
Cresol, U. S. P., drums	lb.	.11	.11½
Creosote Oil	gal.	.11½	.12½
Feldspar (200 to 325 mesh)	ton	14.00	15.00
Formaldehyde, bbls	lb.	.06	.07
Fullers Earth	ton	15.00	24.00
Glycerine, C. P., drums	lb.	.14	.14½
Dynamite, drums	lb.	.13¾	.14¼
Saponification, drums	lb.	.09⅝	.10
Soaps, Lye. drums	lb.	.08¾	.09
Hexalin, drums	lb.	—	.30
Kieselguhr, bags	ton	—	35.00
Lanolin, see Adeps Lanae.			
Lime, live, bbls	per bbl.	1.70	2.20
Mercury Bichloride, kegs	lb.	.93	1.08
Naphthalene, ref. flakes, bbls	lb.	.06	.07¼
Nitrobenzene (Myrbane) drums	lb.	.09½	.11
Paradichlorbenzene, bbls., kegs	lb.	.16	.25
Paraformaldehyde, kegs	lb.	.38	.39
Petrolatum, bbls. (as to color)	lb.	.01⅞	.06¾
Phenol, (Carbolic Acid), drums	lb.	.14¼	.16
Pine Oil, bbls	gal.	.59	.65
Potash, Caustic, drums	lb.	.06¼	.06½
Flake	lb.	.07	.07¼
Potassium Bichromate, casks	lb.	.08⅛	.08⅝
Pumice Stone, powd	100 lb.	2.50	4.00
Rosins (600 lb. bbls. gross for net)—			
Grade B to H, basis 280 lbs	bbl.	5.40	5.65
Grade K to N	bbl.	5.65	5.90
Grade WG and X	bbl.	6.20	6.55
Wood	bbl.	4.30	5.85
Rotten Stone, pwd. bbls	lb.	.02½	.04½
Silica, Ref., floated	ton	18.00	22.00
Soap, Mottled	lb.	.04⅛	.04⅜
Olive Castile, bars	lb.	.13	.19
powder	lb.	.21	.25
Olive Oil Foot	lb.	.07	.07½
Powdered White, U. S. P.	lb.	.16	.20
Green, U. S. P.	lb.	.06½	.08
Tallow Chips	lb.	.06¾	.07¼
Whale Oil, bbls	lb.	.05	.06
Soda Ash, cont., wks., bags, bbls.	100 lb.	1.23	1.50
Car lots, in bulk	100 lb.	—	1.05
Soda Caustic, cont., wks., sld	100 lb.	—	2.60
Flake	100 lb.	—	3.00
Liquid, tanks	100 lb.	—	2.25
Soda Sal., bbls	100 lb.	1.10	1.35
Sodium Chloride (Salt)	ton	11.40	14.00
Sodium Fluoride, bbls	lb.	.07½	.09¼
Sodium Hydrosulphite, bbls	lb.	—	.22
Sodium Silicate, 40 deg., drum	100 lb.	—	.80
Drums, 60 deg. wks	100 lb.	—	1.65
In tanks, 15c. less per hundred, wks.			
Tar Acid Oils, 15-25%	gal.	.21	.25
Trisodium Phosphate, bags, bbls	lb.	.03	.0355
Zinc Oxide, lead free	lb.	.06	.06¼
Zinc Stearate, bbls	lb.	.18	.19

Oils — Fats — Greases

Castor, No. 1, bbls	lb.	.10¼	.11
No. 3, bbls	lb.	.09¾	.10½
Coconut			
Manila, tanks, N. Y.	lb.	—	.03⅜
Tanks, Pacific coast	lb.	—	.03⅛
Drums	lb.	—	.04⅜
Cod, Newfound, bbls	gal.	.40	Nom.
Copra, bulk, coast	lb.	.0165	.0170
Corn, tanks, mills	lb.	.07½	.07⅝
Bbls., N. Y.	lb.	.08½	.08⅝
Cottonseed, crude, tanks, mill	lb.	.07	.07¼
PSY	lb.	—	Nom.
Degras, Amer., bbls	lb.	.03	.03¾
English, bbls.	lb.	.03¾	.04½
German, bbls.	lb.	.03½	.04½
Neutral, bbls.	lb.	.09	.11
Greases, choice white, bbls., N. Y.	lb.	.05⅛	.05½
Yellow	lb.	.04¾	.04⅞
House	lb.	.04¾	.04⅞
Lard, prime, steam, tierces	lb.	.07⅜	.07½
Compound tierces	lb.	.11	.11¼
Lard Oil,			
Extra, bbls.	lb.	—	.08
Extra, No. 1, bbls.	lb.	—	.07¾
No. 2, bbls.	lb.	—	.07
Linseed, raw, bbls., spot	lb.	.0910	.0950
Tanks, raw	lb.	—	.0850
Boiled, 5 bbls. lots	lb.	—	.1030
Menhaden, Crude, tanks, Balt	gal.	.20	.22
Oleo Oil, No. 1, bbls., N. Y.	lb.	—	.11½
No. 2 bbls., N. Y.	lb.	—	.11¼
Olive, denatured, bbls., N. Y.	gal.	.84	.86
Foots, bbls., N. Y.	lb.	.07¼	.07⅜
Palm	lb.	.03¼	.03⅜
Palm Kernel, casks, denatured	lb.	—	.02⅞
Peanut, domestic tanks	lb.	.07¼	Nom.
Red Oil, distilled, bbls.	lb.	.07⅜	.08⅜
Saponified, bbls.	lb.	.07⅜	.08⅜
Tanks	lb.	—	.06½
Soya Bean, domestic tanks, N. Y.	lb.	—	.06½
Stearic Acid			
Double pressed	lb.	.09½	.10½
Triple pressed, bgs.	lb.	.12¼	.13¼
Stearine, oleo, bbls.	lb.	.10½	.10⅝
Tallow, special, f.o.b. plant	lb.	—	.05¼
City, ex. loose, f.o.b. plant	lb.	—	.05⅜
Tallow, oils, acidless, tanks, N. Y.	lb.	—	.07
Bbls., c/l, N. Y.	lb.	—	.07½
Whale, crude	lb.	.03½	.04
refined	lb.	.06¾	.07

VICTOR

CHEMICAL WORKS

141 West Jackson Blvd.

CHICAGO

SPECIALTY SOAPS

LIQUID SOAP BASE

Coco Oil—60%—Natural, Opal, Green

LIQUID SOAPS

Coconut ..... 10% to 45%
Olive Oil ..... 10% to 30%
Colored and Perfumed

SCRUBBING SOAPS

Pine, Sassafras, Plain

LIQUID SHAMPOOS

Coconut Oil .. 30% to 45%
Olive Oil 30%
Castile 30%

POWDERED and GRANULATED SOAPS

Castile, U. S. P.
Coco Castile 50-50
Pure Coconut

SOFT POTASH SOAPS

Light and Dark
U. S. P. 9th and 10th

PHONE CUMBERLAND 6-2800

KRANICH SOAP CO.

54-60 RICHARDS ST. BROOKLYN, N.Y.

(*As of October 8, 1934*)

Essential Oils

Almond, Bitter, U. S. P.	lb.	$2.00	$2.50
Bitter, F. F. P. A.	lb.	2.25	2.75
Sweet, cans	lb.	.60	.65
Anise, cans, U. S. P.	lb.	.42	.45
Apricot, Kernel, cans	lb.	.26	.27
Bay tins		1.25	1.50
Bergamot, coppers	lb.	1.40	1.80
Artificial	lb.	1.00	1.30
Birch Tar, rect., tins	lb.	.65	.75
Crude, tins	lb.	.11	.14
Bois de Rose, Brazilian	lb.	1.20	1.40
Cayenne	lb.	2.90	3.00
Cade, cans	lb.	.26	.30
Cajuput, native, tins	lb.	.50	.60
Calamus, tins	lb.	3.25	3.50
Camphor, Sassy, drums	lb.	—	.19
White, drums	lb.	—	.20
Cananga, native, tins	lb.	2.20	2.40
Rectified, tins	lb.	2.50	3.00
Caraway Seed	lb.	1.90	2.20
Cassia, Redistilled, U. S. P.	lb.	1.20	1.25
drums	lb.	—	1.15
Cedar Leaf, tins	lb.	.65	.70
Cedar Wood, light, drums	lb.	.25	.28
Citronella, Java, drums	lb.	.32	.40
Citronella, Ceylon, drums	lb.	.26	.30
Cloves, U. S. P., tins	lb.	.94	.95
Eucalyptus, Austl., U. S. P., cans	lb.	.27	.30
Fennel, U. S. P., tins	lb.	1.15	1.40
Geranium, African, cans	lb.	5.25	7.25
Bourbon, tins	lb.	4.85	6.50
Hemlock, tins	lb.	.70	.75
Lavender, U. S. P., tins	lb.	2.50	6.00
Spike, Spanish, cans	lb.	.90	1.10
Lemon, Ital., U. S. P.	lb.	.95	1.20
Lemongrass, native, cans	lb.	.90	1.10
Linaloe, Mex., cases	lb.	1.40	1.50
Nutmeg, U. S. P., tins	lb.	1.30	1.35
Orange, Sweet W. Ind., tins	lb.	1.60	1.85
Italian cop	lb.	1.60	2.30
Distilled	lb.	.65	.70
Origanum, cans, tech	lb.	.25	.50
Patchouli	lb.	2.50	3.50
Pennyroyal, dom.	lb.	1.85	1.90
Imported	lb.	1.35	1.70
Peppermint, nat., cases		3.35	3.60
Redis., U. S. P., cases	lb.	3.65	3.90
Petit, Grain, S. A. tins	lb.	1.05	1.10
Pine Needle, Siberian	lb.	.85	.90
Rose, Natural	oz.	5.50	18.00
Artificial	oz.	2.00	3.00
Rosemary, U. S. P., tins	lb.	.32	.38
Tech., lb. tins	lb.	.28	.35
Sandalwood, E. Ind., U. S. P.	lb.	5.50	5.75
Sassafras, U. S. P.	lb.	.75	1.00
Artificial	lb.	—	.45
Spearmint, red, U. S. P.	lb.	1.85	2.10
Thyme, red, U. S. P.	lb.	.58	.90
White, U. S. P.	lb.	.70	1.10
Vetivert, Bourbon	lb.	7.50	8.50
Java	lb.	16.00	20.00
Ylang Ylang, Bourbon	lb.	4.60	7.00

Aromatic Chemicals

Acetophenone, C. P.	lb.	$1.50	$2.25
Amyl Cinnamic Aldehyde	lb.	3.50	4.25
Anethol	lb.	1.00	1.10
Benzaldehyde, tech	lb.	.60	.65
U. S. P.	lb.	1.10	1.30
Benzyl, Acetate	lb.	.60	1.00
Alcohol	lb.	.75	1.15
Citral	lb.	1.90	2.20
Citronellal	lb.	2.25	2.50
Citronellol	lb.	2.55	3.00
Citronellyl Acetate	lb.	4.50	7.00
Coumarin	lb.	3.10	3.30
Cymene, drums	gal.	.90	1.25
Diphenyl oxide	lb.	1.05	1.25
Eucalyptol, U. S. P.	lb.	.62	.65
Eugenol, U. S. P.	lb.	2.00	2.50
Geraniol, Domestic	lb.	1.25	2.00
Imported	lb.	2.00	3.00
Geranyl Acetate	lb.	3.00	3.50
Heliotropin	lb.	1.85	2.10
Hydroxycitronellal	lb.	3.50	9.00
Indol, C. P.	oz.	2.00	2.50
Ionone	lb.	3.60	6.50
Iso-Eugenol	lb.	3.00	4.25
Linalool	lb.	1.65	2.25
Linalyl Acetate	lb.	3.00	4.25
Menthol	lb.	3.50	3.60
Methyl Acetophenone	lb.	2.50	3.00
Anthranilate	lb.	2.15	3.20
Paracresol	lb.	4.50	6.00
Salicylate, U. S. P.	lb.	.40	.45
Musk Ambrette	lb.	5.75	6.00
Ketone	lb.	6.25	6.50
Moskene	lb.	5.00	6.00
Xylene	lb.	2.00	2.50
Phenylacetaldehyde	lb.	4.00	6.50
Phenylacetic Acid, 1 lb., bot.	lb.	3.00	4.00
Phenylethyl Alcohol, 1 lb. bot.	lb.	4.25	4.50
Rhodinol	lb.	5.75	8.00
Safrol	lb.	.50	.53
Terpineol, C. P., 1,000 lb. drs.	lb.	.33	.35
Cans	lb.	.36	.37
Terpinyl Acetate, 25 lb. cans	lb.	.80	.90
Thymol, U. S. P.	lb.	1.40	1.50
Vanillin, U. S. P.	lb.	4.50	5.75
Yara Yara	lb.	1.30	2.00

Pyrethrum Products

Insect powder, bbls.	lb.	.34	.37
Concentrated Extract			
5 to 1	gal.	2.05	2.10
15 to 1	gal.	5.75	6.00
20 to 1	gal.	7.80	7.85
30 to 1	gal.	11.55	11.60

Gums

Arabic, Amb. Sts.	lb.	.09	.09½
White, powdered	lb.	.13	.13½
Karaya, powdered No. 1	lb.	.08	.09
Tragacanth, Aleppo, No. 1	lb.	1.15	1.20
Sorts	lb.	.11	.12

Waxes

Bees, white	lb.	—	.33½
African, bgs.	lb.	.21	.22
Refined, yel.	lb.	.25	.26
Candelilla, bgs.	lb.	.13	.14
Carnauba, No. 1	lb.	.32	.33
No. 2, yel.	lb.	.31	.32
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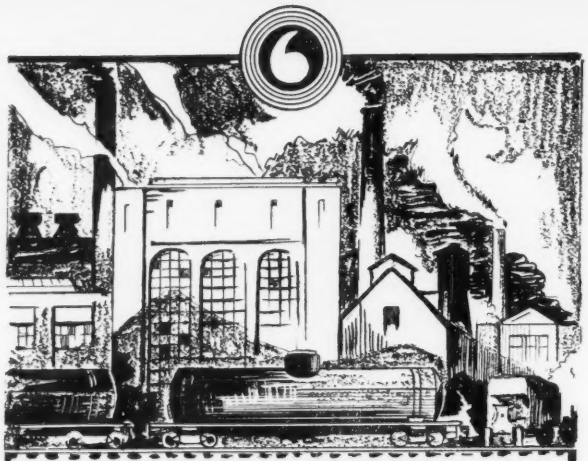

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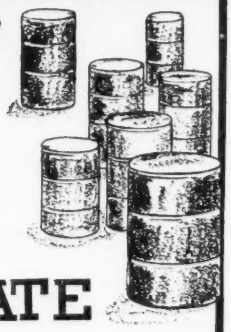

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NASCENT SOAP

(*From Page 26*)

OLEINE SOAP is an almost ideal detergent for woolens on account of its high solubility. Soaps made from hard fats are liable to remain in the articles and give them a harsh feel. It might be anticipated that the new method of washing would give a soft finish and absence of shrinkage far superior to the usual methods, since shrinkage is held to be largely due to the felting of the fibers as the result of friction. As a matter of practical experience, woolen goods washed regularly in this way over a period of a year, were found to be as soft and fluffy, and in as good a condition as when new, except for damage from constant wear.

Increased cleansing action by the emulsion process is made particularly evident in the case of colored goods. Apparently it makes possible the removal of minute amounts of dirt not removed in the ordinary washing operation. The result is that the colors retain a brightness not usually observed. It is generally possible to take goods which have been thoroughly washed by ordinary methods, submit them to the emulsion process, and obtain considerable additional quantities of dirt, with a marked improvement in the appearance of the colors.

An unexplained fact in connection with this is that while sodium oleate is a better detergent at lower temperatures than it is at boiling, in the case of nascent sodium oleate, the detergency appears to be much increased at boiling temperatures. For example in the case of cotton goods, if after treatment with the emulsion, they are plunged into a boiling alkaline solution, the amount of difficulty removable dirt which is liberated is very much greater than if the operation is carried out with an alkaline solution at about 140° F.

Why nascent soap should possess its peculiar properties is difficult to explain. In fact, in spite of the vast amount of elaborate and highly scientific work being carried on, it is still not known what those properties of a liquid are which give it the power of detergency. A number of physico-chemical properties have been associated with detergency, but any one of them, or possibly all of them, can be possessed by some non-detergent substance. Therefore explanation of why nascent soap should possess detergent properties to a greater degree than soap already formed, will have to wait until there is a more complete explanation of detergency itself.

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Olive, peanut, sesame, and colza oils are not affected by ultra-violet light in the presence of inert gases such as carbon dioxide. However, they are oxidized in the presence of air, as proved by increase in density, decrease in iodine number, oxidation of double bonds, and decolorization of the oils; the fluorescence changes from yellow to deep blue. L. Francesconi and L. Pinoncelli. *Ann. Chim. applicata* **24**, 242-6 (1934).

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PRODUCTION SECTION

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, *Oil & Fat Industries.*

Persulfate as a Soap Bleach

By C. S. KIMBALL, H. J. HOSKING, and FOSTER D. SNELL*

ALTHOUGH persulfates have been reported to be effective bleaching agents for soap, their use for this purpose has not developed on a commercial scale in this country. Such use was originated in Germany and has been adopted to a substantial extent there. A number of proprietary bleaching agents on that market, known by such names as Peroxol, Palidol, and Persofol contain persulfate as their chief ingredient. Some ammonium persulfate is often present[1]. This method of bleaching, however, has apparently not been able to compete successfully with other methods in use in this country.

The bleaching of soap with persulfates was patented in 1906[2]. The process is described as being particularly advantageous for bleaching soaps made from linseed oil, palm oil, cottonseed oil, neatsfoot oil, and impure olive oil. According to the example given, 0.5 per cent of persulfate on the basis of the fat used is added to the soap batch during boiling. Palidol has been reported in the literature to give good results for bleaching tallow and cottonseed oil soaps[3]. A similar procedure has been described[4] for the use of potassium persulfate in bleaching a soap stock consisting of tallow, bone grease, palm kernel oil and peanut oil fatty acids. A series of experiments on the use of persulfate in the form of a trade product called Peroxol have been reported, in which both hard and soft soaps were bleached[5]. In all of these the persulfate was added with alkali to the boiling soap previous to salting out. In later experiments[6] it was found that the use of the persulfate in saponification always produced an odor of chlorine when the soap was salted out. Decomposition of persulfate was apparently incomplete. It was therefore recommended that the persulfate be added to the strongly alkaline soap just after salting out, at a temperature just below boiling.

In many cases the bleaching effect has been reported as followed by after-darkening[7], in some cases in the presence of excess persulfate, in other cases in its absence. This indicates that each type of soap stock is a separate problem.

A number of other experimenters[8,9,10], have dealt with improving the bleaching effect of persulfate by using some other material with it, subsequent treatment with a reducing agent, for example. Persulfate and hydrogen have been used together[11].

In these and other references the procedures described vary. There are apparently no accepted optima as to temperature, time of treatment, type of agitation, concentration of persulfate and other factors which will give the best results. These factors were therefore investigated.

Experimental Method

PRELIMINARY experiments were carried out with soaps of various fats. Palm oil soap was selected as the standard material for the work because it showed the greatest difference in color between the bleached and unbleached soap. The soap used was prepared in the laboratory by saponifying palm oil with 15° Be. caustic soda, and salting out with sodium chloride. The soap for the entire series of experiments was made from the same batch of palm oil so that there were no variations in the original color of the soap, which was a dark orange shade. Analysis of the soap showed it to be completely saponified and to contain approximately 60 per cent anhydrous soap.

Experimental handling of soap in a concentration above 20 per cent is difficult due to foaming. Therefore the main part of the work was carried out with

* Paper presented by Dr. Snell before American Chemical Society. Reprinted by special permission from Industrial & Engineering Chemistry, Oct., 1934.

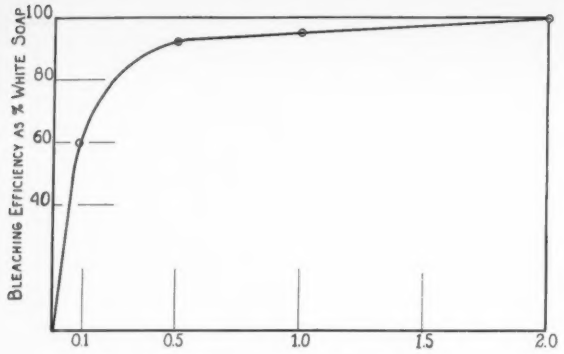

Figure I

this 60 per cent soap dissolved in water to give a 20 per cent solution. The amounts used normally contained 100 grams of anhydrous soap. A series was run later to show the effect of varying the concentration.

The apparatus in which the bleaching was carried out was analogous to the open kettle commonly used in soap plants, which provides for agitation by means of jets of live steam. A flask of suitable size was surrounded by a heating bath of brine. A steam line led to the bottom of the flask which provided agitation of the contents and maintained the temperature at 100° C. This was equipped with a trap to prevent condensation in the line and consequent relatively large increase in the volume of solution contained in the flask.

The persulfate dissolved in water was added to the soap solution in the flask at a constant rate, calculated so that the time for addition would be 30 minutes. After all the persulfate had been added, the solution was agitated for 30 minutes longer to insure complete utilization of the persulfate. In all cases a suitable test showed absence of residual persulfate. The bleached soap was then salted out and stored, without being washed, in tightly stoppered glass bottles. Samples were withdrawn from these for colorimetric comparison with a series of standards to show the degree of bleaching that had occurred.

Method of Comparison

SOME difficulty was experienced in preparing samples for colorimetric comparison as the bleached soap tended to give cloudy solutions in several solvents tried. It was found, however, that satisfactory comparison could be made by using solid solutions in glycerine of both the standards and the test specimen, the solutions being made up to contain 10 per cent by weight of anhydrous soap. Such a solution of commercial white soap was selected as the standard for optimum removal of color as it was transparent and practically colorless. A series of standards was then made up consisting of mixtures in varying proportions of the white soap solution and a similar glycerine solution of the unbleached experimental soap, a total soap content of 10 per cent being uniformly maintained. The proportions varied from a ratio of 98 per cent white to 2 per cent experimental soap in the lightest standard to 40 per cent white to 60 experimental soap in the darkest. The standards thus showed a range of colors between the color of the original unbleached soap solution and the substantial absence of color of the white soap solution. These standards were placed in tubes which were sealed with paraffine. To determine the efficiency of the bleaching operation, a glycerine solution containing 10 per cent of the anhydrous bleached soap was made up and compared with the series of standards against a white background. The degree of bleaching obtained is expressed in terms of the per cent of white soap in the standard it matched. In some cases slight cloudiness occurred in the test specimen. This was cleared up by heating, in which case the standards were heated to the same temperature.

When not in use the color standards were protected from exposure to light. They were checked at the end of 3 months and 5 months and found to be unchanged.

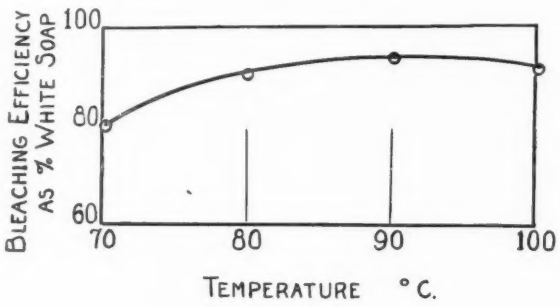

Figure II

Optimum Conditions

Concentration of Persulfate. A commercial potassium persulfate was used in all experiments. It was substantially pure. The ratio of quantity of potassium persulfate used to the degree of bleaching obtained was the first variable studied. With all other factors maintained constant so far as possible, the original palm oil soap was bleached by the process described with amounts of persulfate varying from 0.1 per cent to 2.0 per cent by weight of the amount of anhydrous soap to be bleached. The bleached soap obtained in each case was compared with the series of color standards, giving the results shown in Figure 1. Based on these results 0.5 per cent was taken as the optimum concentration of persulfate, since this showed removal of over 90 per cent of the color and higher concentrations increased the bleaching efficiency but little.

Temperature. Using a concentration of 0.5 per cent potassium persulfate and with other variables constant, the soap was bleached by the process described, at different temperatures ranging from 70° to 100°. In order to obtain the temperatures desired below 100° steam could not be used for agitation in these runs. Agitation by mechanical means was substituted. While there is no great difference in the bleaching effect over this range, as shown in Figure 2, the optimum temperature appears

to be 90°. Since the difference in degree of color removal between that temperature and 100° was very slight, 100° was adopted as the standard temperature for later runs because of the greater convenience of using steam for agitation and because of the parallelism to plant operating conditions.

Free Alkali. Since persulfate reacts during the bleaching process to give free acid, some alkali must be added to prevent decomposition of the soap and formation of free palmitic acid. The reaction is $K_2S_2O_8+H_2O=$ $K_2SO_4+H_2SO_4+(O)$. As excess alkali might have some effect on the bleaching efficiency, the amount of alkali added was studied as a variable and runs made with varying quantities of sodium hydroxide present. These quantities varied from none at all to an amount ten times that equivalent to the sulfuric acid liberated by the amount of persulfate used. Results are shown in Figure 3. It is apparent that the bleaching effect remains unaffected either in the absence of alkali or in the presence of a small excess of alkali. A large excess, however, substantially decreases the bleaching efficiency. In the commercial use of persulfate for bleaching it would therefore be necessary to control the amount of excess alkali rather carefully in order to obtain complete neutralization of liberated acid and at the same time avoid the use of a large excess of alkali. As a standard procedure in these experiments an amount of sodium hydroxide equivalent to twice the amount of acid liberated was adopted.

Rate of Addition of Persulfate. On the theory that too rapid addition of the persulfate to the soap might result in a loss of some of the available oxidizing strength, runs were made in which the rate of addition of the persulfate was varied. In one run all the persulfate was added at once, in another it was added gradually over a period of fifteen minutes and in another it was added over a period of thirty minutes. The soap was bleached to the same color in all three cases. This result indicates that the decolorization reaction utilizes all the available oxygen of the persulfate as fast as it is liberated. Since an addition period of thirty minutes had been used in prior experiments it was continued for the sake of uniformity.

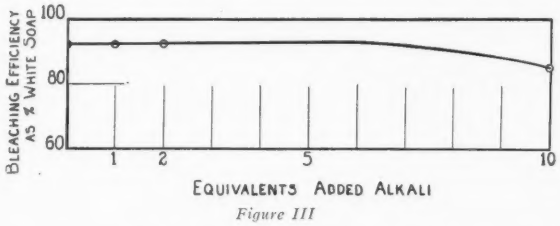

Figure III

Addition of Stabilizers and Accelerators. Compounds such as thymol, hydroquinone and stannic phosphates are known to be stabilizers for hydrogen peroxide. Titanium and iron salts are known to catalyze its decomposition. There was a possibility that these substances might have a similar effect with potassium persulfate. Runs were therefore made with the addition of these materials in concentrations of 0.1 per cent and 0.01 per cent by weight of the soap bleached on a dry basis. Positive results were obtained only with hydroquinone, which decreased the bleaching efficiency. This apparent effect may have been due to the formation of colored compounds of hydroquinone.

Concentration of Soap. To handle more concentrated soaps they were heated in a glycerine bath and stirred by hand, to avoid foaming. As contrasted with over 90 per cent color removal at 20 per cent soap concentration, 0.5 per cent of persulfate removes only 85 per cent of the color at 50 per cent soap concentration. This degree of color removal leaves a distinguishable yellow tinge in the bleached soap. Variations in the method and time of adding persulfate at this higher soap concentration were without effect. The optimum effect at a lower concentration is therefore indicated.

After Darkening

A LIMITED number of observations were made on this property. As typical ones soaps originally showing a color of 92.5 stood in the dark for 2 months and again read 92.5. The same soaps in the light bleached to 95 in that time. After 5 months the results were the same. A soap having a value of 82½ bleached in 33 days in the light to 90. One sample having ten times the amount of alkali to be equivalent to the persulfate was the only case of after darkening noted. In that case the effect was ascribed to excess of alkali rather than to persulfate which, by test, was absent at the conclusion of all bleaching experiments.

Comparison with Other Bleaches

PALM oil is commercially bleached by agitation with chromic and sulfuric acids or by exposure to sunlight. The soaps from palm oil can be bleached with hydrogen peroxide or with sodium perborate. The latter two would be directly comparable in technique to the use of persulfate.

Using the determined optimum conditions and following the standard procedure outlined, a series of runs was made using hydrogen peroxide or sodium perborate in place of the potassium persulfate. In some runs the amount of peroxide or perborate was the same as the optimum amount found for the persulfate, that is 0.5 per cent by weight of the anhydrous soap. In other runs higher concentrations of peroxide were used. The results obtained are shown in Table I.

TABLE I

Comparative Bleaching Efficiency, Persulfate, Peroxide, and Perborate

Bleaching Agent	Concentration % by Wt. of Soap to be Bleached on Dry Basis	Degree of Bleaching Obtained
Potassium persulfate	0.5	92.5%
Hydrogen peroxide*	0.5	40.0%
Hydrogen peroxide†	0.5	40.0%
Hydrogen peroxide	1.0	60.0%
Hydrogen peroxide	2.0	80.0%
Hydrogen peroxide	5.0	92.5%
Sodium perborate	0.5	40.0%

* No alkali added.
† Alkali equivalent to that in standard procedure added.

(*Turn to Page 65*)

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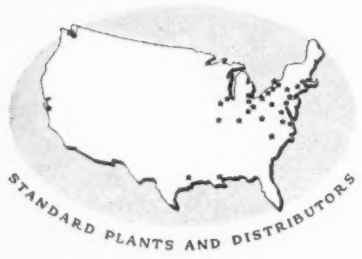

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MODIFIED SOAPS

Comparative washing tests were made of the detergent power of soap solutions containing various concentrations of soda ash, trisodium phosphate, sodium bicarbonate, sodium sulfate, caustic soda, and sodium silicate. Maximum efficiency was obtained with about 40 per cent fatty acid, 28 per cent caustic soda, and 16 per cent trisodium phosphate, with the total amount of detergent equal to 2 per cent of the weight of fabric to be washed.

A good formula for household soap is about 50 per cent fat (titer 45-48°) and 50 per cent of other ingredients, including 3 to 4 per cent of soda ash and 10 to 12 per cent of Kaolin. The optimum clay content depends on the amount of other ingredients present. A 17 per cent soap with 40 per cent kaolin is not economical, nor is a 50 per cent soap. A 32 per cent soap with 20 per cent kaolin, or a 40 per cent soap with 10 per cent kaolin is considered satisfactory.

Castor-oil sulfonates made by sulfonation in the presence of acetone or ether are particularly potent stabilizers for soaps in hard water. Naphthenic and sulfonaphthenic acids increase the detergent power of soap solutions. Distilled naphthenic acids from petroleum present a useful ingredient in detergents. Mineral oil sulfonic acids in low concentrations have a moderate stabilizing effect on soaps in hard water. Soap cost can be cut in half by adding 10 per cent of Turkey-red oil to the soap for washing in hard water.

Acids obtained by the catalytic oxidation of petroleum distillates including carboxyl and hydroxy acids and their mixtures, were sulfonated and tested as soap aids. Good results were obtained with soaps made from 50 per cent of fatty acids and 50 per cent of the sulfonated synthetic acids. There is a considerable potential demand for these acids where their dark color is not objectionable. D. Rozhdestvenskii, L. Ivanova and I. Boltunova. Vsesoyuznuii *Nirm Mi*, 116 pp.

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Industrially useful fats are obtained from animal materials by heating and working them mechanically with water into a paste, adding a fat emulsifier, and separating the fatty emulsion in a centrifuge. The water may be removed prior to the addtion of the emulsifier. The latter may be soap or resin. Wilhelm Steinmann. Swiss Patent No. 166,792.

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Japanese chrysalis oil contains palmitic acid as the main constituent. Also present are stearic acid and an acid corresponding to C_{20} or C_{22}. The isopalmitic acid found by S. Kawase could not be detected, but an almost inseparable mixture of C_{16} and C_{18} was found. S. Ueno and H. Ikuta *J. Soc. Chem. Ind. Japan* **37,** Suppl. binding 124-6 (1934).

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Oils and fats can be recovered more readily from seeds by mixing the seeds with 0.2 to 1.5 per cent of lecithin, before they are pressed. Hanseatische Muehlenwerke A.-G. German Patent No. 599,130.

DETERGENCY OF DISHWASHING COMPOUNDS

A study of dishwashing compounds conducted at Mellon Institute gave the following results:

Detergent	Light Transmission of Glass Plates as Compared With Original %
Mixture of 70% soap and 30% sodium carbonate	0.9
Sodium aluminate	2.2
Sodium carbonate	4.2
Proprietary E	24
Proprietary D	62
Sodium metasilicate	65
Proprietary C	71
Trisodium phosphate	72
Proprietary B	79
Proprietary A	82
Soap 33⅓%, sodium carbonate 33⅓, sodium metaphosphate 33⅓	89
Formula 1 (%): Trisodium phosphate 45, sodium metaphosphate 53, caustic soda 2	100
Formula (2) (%): Trisodium phosphate 55, sodium metaphosphate 43, caustic soda 2	98
Formula 4 (%): Trisodium phosphate 75, sodium metaphosphate 23, caustic soda 2	99
Formula 5 (%): Trisodium phosphate monohydrate 15, sodium metasilicate pentahydrate 40, sodium metaphosphate 40, caustic soda 5	97

A mechanical dishwashing machine was used under standard conditions. The soil consisted of a mixture of peanut butter, lard, butter and calcium hydroxide. The light transmission of the glass plater after soiling and washing was read photometrically. As shown in the table, the four formulas given resulted in almost perfect cleaning. Proprietary products A, B and C were mixtures containing large amounts of trisodium phosphate. Proprietary D was a commonly used neutral domestic flake soap. Proprietary E was a sulfated fatty alcohol. While sodium metaphosphate lacks the powerful soap-forming action of the more alkaline detergents, its admixture with these salts led to greatly improved results. It prevents the formation of insoluble adherent films of calcium and magnesium precipitates, which lead to unsatisfactory results in dishwashing unless water of 0 hardness is used.

Tests were also made to study the effect of these detergents on aluminum, since it is common knowledge that alkali attacks aluminum and these detergents are all alkaline in reaction. It was found that this type of detergent corrodes aluminum markedly, particularly the cheaper grades of aluminum, except in the presence of sodium metasilicate. This alkali has a protective action. A detergent for household use to be used on aluminum should contain at least 30 per cent of sodium metasilicate, and preferably 40 per cent to protect very cheap ware. Formula 5 was judged to have the best composition for dishwashing purposes of all of those studied. Charles Schwartz and Bernard H. Gilmore. *Ind. Eng. Chem.* **26,** 998-100 (1934).

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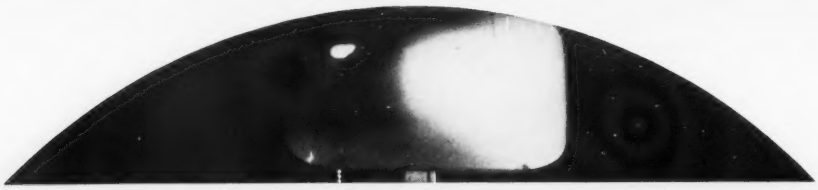
The error committed in expressing the acidity of ordinary commercial oils and fats, except copras but including palm oils, as oleic acid, irrespective of the true nature of the acid, does not exceed a maximum of 5 per cent of the amount of free acid. With palm oils the error is smaller than when expressing all acids as palmitic acid. Therefore the present practice of expressing acidity as oleic acid, except for copras, has much to commend it. There are no truly valid reasons for changing it. L. Margaillan and E. Allemand. *Chimie et Ind.* Special No. 894-5 (1934).



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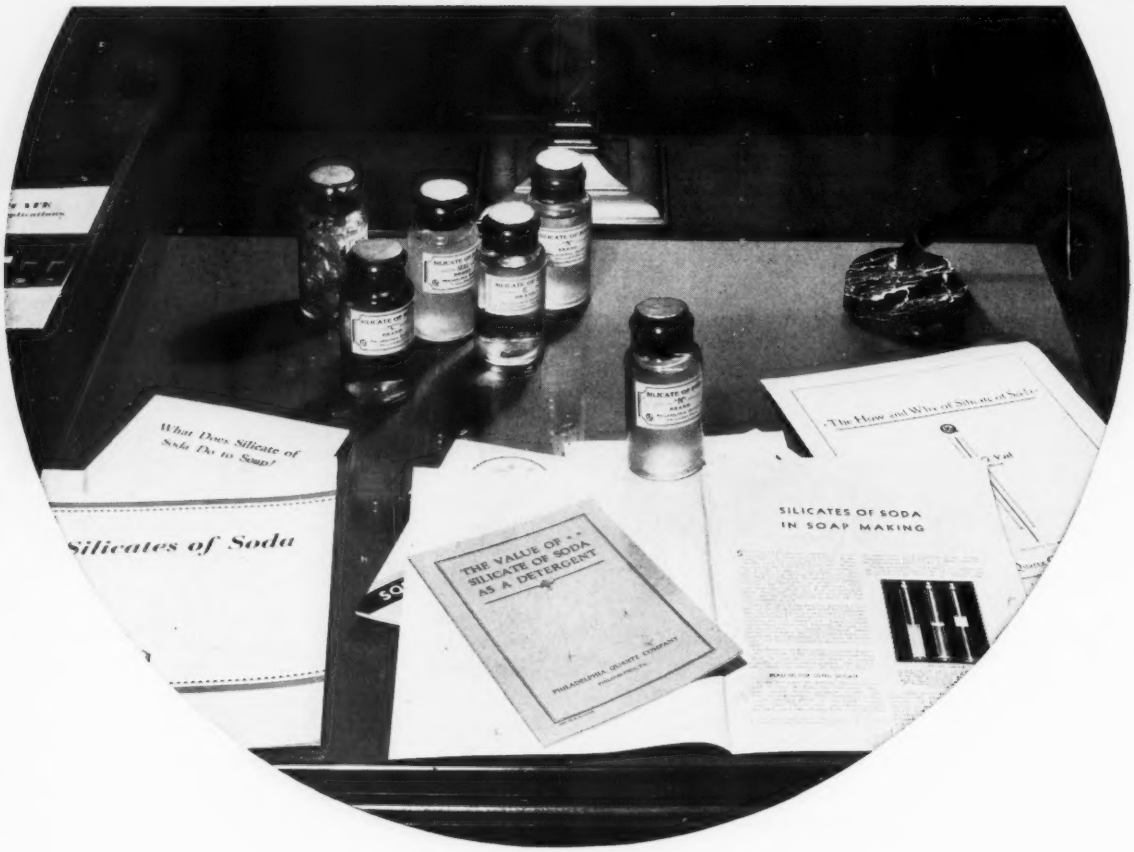
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ON PRODUCTS AND PROCESSES

Soap made from oxygen-containing organic bodies derived from the oxidation of petroleum is purified by blowing a current of steam into the soap while contained in a closed vessel at a temperature in excess of 250° C. Vapors are removed from the vessel with the aid of diminished pressure, condensed and recovered, thus effecting the removal of alcoholic hydroxyl and a separation of unsaponifiable volatile impurities, without deleteriously affecting the soap. Colgate-Palmolive-Peet Company. Canadian Patent No. 344,884.

Soap is manufactured by boiling the fats with a concentrated solution of alkali (40-50° Be.) containing about 1/3 the amount of alkali necessary for saponification. The glycerol formed is decomposed by the concentrated alkali, with the result that saponification proceeds practically to completion. The saponification product is neutralized with dilute alkali to give a product of about 18° Be., which is boiled again. Chaim Thaler. Austrian Patent 137,581.

Soft soap is made from an oil mixture having a fatty acid content of 30 per cent and a saponifying lye containing potassium and sodium in the proportion of 90:10. Friedrich W. Leffer. German Patent No. 598,569.

The stability of sulfonated oils against turbidity can be improved by the proper selection of the conditions of sulfonation, the kind of oils and the degree of neutralization. Hydroxystearic acid and its salts, which are only slightly soluble in water, are believed to be the cause of turbidity in sulfonated oils made from oils other than castor oil. K. Nishizaiva and K. Hirokawa. *J. Soc. Chem. Ind., Japan*, **37**, Suppl. binding 269-72 (1934).

Washing agents of all kinds are made by adding up to one per cent of a high molecular weight alcohol, and up to 10 per cent of olein, to the usual soap making constituents. A preparation for household use may consist of fatty acid, olein, cyclohexanol emulsified with oil of turpentine, decahydronaphthalene, and liquid petrolatum. Michael Industrie-A.-G. German Patent No. 597,874.

Saponin and like compounds for intensifying the lathering properties of soap are added in the cold when the soap is in the solid state, preferably after it has been cut into pieces. Les Produits Panamose s. a. r. l. French Patent No. 763,378.

Fractional crystallization from cold aqueous alcohol solutions affords a simple and convenient method for the approximate separation of solid and liquid fatty acids, which may be useful for differentiating between fats having very similar characteristics. In carrying out such crystallizations it is extremely important to avoid all traces of calcium soaps. G. Wolff. *Chimie et Ind.* Special No. 885-8 (1934).

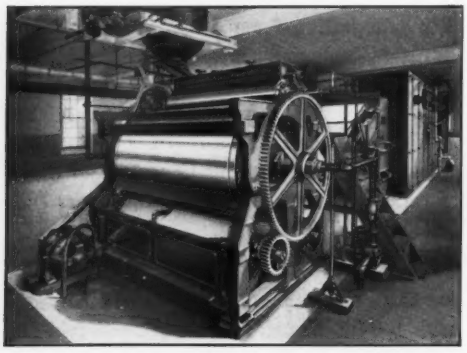
For a hand soap, melt 100 kg. of tallow or other hard fatty acid with 100 kg. of palm kernel oil, and add 100 kg. of pine oil. Heat to about 70° C. and saponify with 100 kg. of 36° Be caustic soda. The resulting soap is half-transparent and has good lathering properties. If 100 kg. of water is added to the above, a soap paste is obtained. An abrasive can also be added. Otto Duesberg. *Seifensieder-Ztg.* **61,** 667-8 (1934).

Preparations for dispersing and emulsifying agents are prepared by treating the fatty alcohol mixture obtained by reducing esters of palm-nut and cocoanut fatty acids with sulfuric oxychloride (SO_2Cl_2) and the sodium salt of sulfonic acid in the presence of an acid binding agent. Alternatively, myristyl alcohol may be treated with sulfuric oxychloride and the product treated with the sodium salt of sulfonilic acid. The myristyl alcohol may be replaced by oleyl or by cetyl alcohol. J. R. Geigy A.-G. Swiss Patents 167,024-7.

In Russia soap factories have used covered soap kettles successfully. The soap-boiling tank is fitted with a thick wooden cover. A pipe from the center extends up through the roof and serves as a ventilator. This can be closed by a valve to prevent the soap from cooling too quickly on standing overnight. Liquid raw materials are run in through a suitable opening. Other openings serve for the addition of solid materials and for the removal of samples for testing. R. Heublum. *Seifensieder-Ztg.* **61,** 611-2 (1934).

An unsaponifiable oil, called in Germany by the trade name "Trollhetta" oil, makes a suitable addition to liquid soap, in which it is soluble. Saponify 50 parts of soy bean oil, 40 parts of coconut oil and 10 parts of castor oil with caustic potash. To 100 parts of a 20 per cent solution of the soap, add 4 per cent of unsaponifiable oil in the cold. The latter dissolves on shaking. Flocculation in such a liquid soap occurs at about 0° C. C. Stiepel. *Seifensieder-Ztg.* **61,** 631-2 (1934).

PRODUCING THE PERFECT CHIP FOR ALL SOAP MAKING NEEDS



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● The New Proctor Chip Soap System produces the thinnest of chips . . . chips perfectly formed in long ribbons, evenly thin from edge to edge, uniformly dried free from hard overdried particles or underdried spots. These chips make cleaner, whiter,. quicker-dissolving laundry flakes. They make smooth-surfaced, clear-colored toilet cakes. They give quicker, better milling and plodding. They give quicker, easier grinding into powdered soaps . . . with less loss in dust. New high speed chilling roll . . . spray-cooled, pump-drained, precision-ground, smooth-surfaced. New drying machine . . . with revolutionary improvements in principal details of design . . . more efficient, more economical, cleaner in operation. Write for your copy of our new descriptive Bulletin No. 72.

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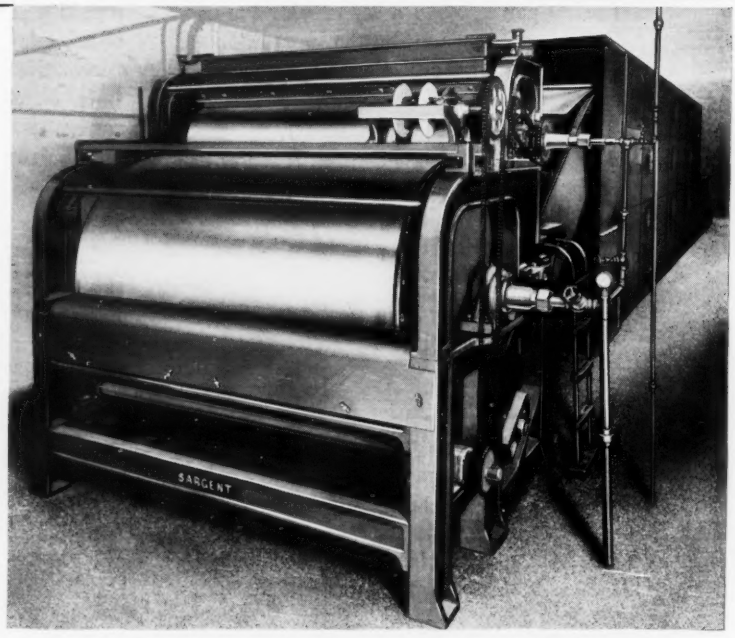

AS the title indicates, the Rolls are NEW and the entire machine is NEW, many valuable improvements having been perfected until this latest Sargent development is now one of the very finest Rolls obtainable.

To the soap manufacturer, the most important angle is to have a *thin, uniform chip* . . . readily accomplished by these new Rolls being expertly machined, ground and set. Finest grade of cast iron. Vari-speed controls on both Rolls insures easy adjustment . . . every part accessible. Drive improvements reduce the horsepower used. Changes made at a minute's notice. The Dryer is entirely re-designed. Its housing gives better insulation and cuts down steam consumption per hour. Other valuable changes have been made in the circulating and exhaust air systems . . . and all *fans* are *direct motor driven.*

C. G. SARGENT'S SONS CORP. GRANITEVILLE MASS., U. S. A.

DIFFICULTIES IN GLYCERIN SOAPS

If a glycerin soap is transparent while warm but becomes turbid on cooling, too much hard fat has been used in the fat charge. To correct such a condition, add alcohol, or castor oil dissolved in alcohol, with the necessary amount of alkali to saponify the castor oil. If the soap gels very slowly and has a gummy consistency, too little stearin has been used. More can be added in alcohol plus the alkali for saponification.

If the soap in the kettle does not resist pressure, is dull, without gloss, and shows a faint turbidity, too little alkali may have been added or saponification may not be incomplete due to carbonic acid present as an impurity in the fatty acid. In the former case, add alkali in alcohol. In the latter case, the evil cannot be cured. The soap can be added in small amounts to other soaps. If the cool sample is not particularly transparent and shows no elasticity but gives dull brittle bits between the fingers, the alkali content is too high. Add coconut oil mixed with hot water slowly with stirring.

If a thick foam covers the soap on standing in the vessel and this remains after addition of alcohol, the caustic used was contaminated with sodium carbonate. Add coconut fatty acids mixed with alcohol. Repeat this addition until the thick foam disappears and the surface of the soap remains clear. If the soap has a layer of foam which is difficult or impossible to disperse with alcohol, and shows a normal alkali content, the quantity of water present may be too low. Add small amounts of hot water, stirring well. Repeat the addition of water until the foam disappears. Such cases sometimes occur on saponifying old dried-out stocks. Monsoin. *Seifen-Oel-und Fett-Ind.* **20,** 254-5 (1934).

SALT CONTENT OF STANDARD SOAPS

The salt content of various soaps was estimated by precipitating the fatty acids with magnesium nitrate and titrating the solution with standard silver nitrate solution. Pear's Ball soap had the lowest salt content, 0.2 per cent, and Colgate's Palm-Olive soap the highest, 1.94 per cent. Other values found were Bromley's Lavender, 1.52 per cent salt, Lux 1.44, Colgate's Cashmere Bouquet 1.11, Margerison's White Rose 0.74, Roger and Gallet Sandal 0.70, Lemoine Rose 0.65, Vinolia Turkish Bath 0.44, and Yardley's Old English Lavender 0.42 per cent. Of unmilled soaps, Gossage's Bar Soap contained 0.40 per cent of salt and Lever Brothers Sunlight Soap 0.48 per cent. Palm oil and coconut oil stocks have a high salt retention, also the smaller the charge of soap stock, the greater in proportion is the amount of salt retained.

In the rainy atmosphere of Calcutta, most soaps sweat. Soaps containing comparatively high proportions of the lower molecular weight fatty acids appear to absorb more moisture on exposure. Another factor is the dryness of the soap, the drier the soap, the greater the deposition of moisture. A dry cake of a certain brand absorbed moisture more freely than a fresh cake of the same brand. R. L. Datta and Tinkari Basu. *Indian Soap J.* **1,** 31-2 (1934).

PINE OIL SOAPS

Pine oil contains about 80 per cent of terpene alcohols. It can be used in soap in various ways.

1. Liquid fat-soluble soap

300 kg. pine oil
100 kg. soy bean oil fatty acids
60 kg. water
40 kg. caustic potash, 50° Be.

This product is readily soluble in water. It may be mixed in proportions of 1:1 up to 1:4 with terpentine oil, benzine, carbon tetrachloride, or tri- or dichlorethylene. These may be mixed 1:1 or 1:2 with water to give excellent emulsions.

The above soap is soluble in oil and may be used as follows:

12.5 kg. above pine oil soap
12.5 kg. pine oil
75 kg. refined spindle oil 2° E. at 50° C.

This gives a stable non-combustible oil product which is easily emulsified with water to give a white emulsion.

2. Liquid Soap

15 kg. rosin ww-F/G
30 kg. melted soy bean oil fatty acids
105 kg. pine oil

After mixing separate 40 kg. of the resulting mixture. To the remainder in the kettle add 135 kg. of water and 15 kg. of 50° Be caustic polish. After stirring the mass is transparent and jelly-like. Now add the 40 kg. of fat mixture previously set aside. This soap can be mixed with twice its weight of water. If less than that amount of water is used, an opaque soap paste results. If instead of water, 100 kg. of pine oil is added, a smooth liquid soap is obtained, which dissolves in water in any proportion. Otto Duesbery. *Siefensieder-Zit.* **61,** 632-3 (1934).

Ammonia acts on fats under high pressure. Experiments were carried out in a shaking autoclave at 150° C. Olive oil, coconut oil, castor oil, fish oil, spermaceti, wood oil and linseed oil were treated with 100 cc. of liquid ammonia per 100 grams of substance. The heating periods were ½ and 1 hour for olive oil, and 1 hour for all others. The pressure was 80-100 atmospheres. Good yields of acid amides were obtained. All products were solids. R. Oda and S. Wada. *J. Soc. Chem. Ind.*, Japan **37,** Suppl. binding 295-6 (1934).

Emulsifying agents are obtained by subjecting fats or fatty oils or free fatty acids to a decarborxylation treatment at 350-500° C. Water-soluble derivatives of these products serve the same purpose. I. G. Farbenind. A.-G. German Patent No. 594,093.

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PERSULFATE AS A SOAP BLEACH

(*From Page* 57)

These results show quite positively that persulfate is superior to either peroxide or perborate for bleaching palm oil soap under the conditions used.

Effect on Other Soaps

THE standard procedure arrived at in experiments with palm oil soap was also applied to a number of other kinds of soap. With a tallow soap made from a low grade house grease only a part of the color, not mechanically removable in the saponification process, was bleached. The effect was similar to that of peroxide and of perborate in the same concentration on this soap.

When applied to a boiled down cottonseed oil foot soap of high color and rank odor, persulfate bleaching had relatively little effect. This soap appears to contain a brown pigment and a yellow to orange pigment. The first can be removed by the process but the second cannot.

Persulfate gave a measurable bleaching effect on a soap from good grade olive oil, which was relatively light in color. Due to this original light color the effect of the bleaching was scarcely distinguishable. Hydrogen peroxide and perborate did not give measurable bleaching.

With an olive oil foot soap a change of color rather than a bleaching effect resulted. The original soap was dark green, which was lightened to some extent by 0.1 per cent persulfate. Increase of the persulfate to 0.5 per cent gave a greenish yellow color and further increase produced an orange color. One possible explanation is that a mixture of green and yellow pigments is present in this soap, of which only the green is removed by the bleach. In that case presumably the yellow is carotinoid pigment which is deepened in color by the persulfate. Alternatively the green pigment may be changed by oxidation to a yellow or orange one. The literature on the subject of oxidation of such pigments provides no satisfactory explanation of this behavior. Peroxide and perborate show only the slight degree of bleaching given by 0.1 per cent of persulfate.

No bleaching effect could be obtained in treatment of coconut oil soap. Corn oil soap showed only a slight reduction of color with 1 per cent of persulfate.

Authorities Quoted

[1] E. Schotte, Soap *1*, 19-20 (1926).
[2] Vereinigte Chemische Werke A. G., Charlottenburg, Germany, German Patent 200,684 (1906); French Patent 377,900 (1907); English Patent 15,900 (1907); U. S. Patent 968,438 (1910).
[3] Ala., Seifensieder Ztg., *49*, 538 (1922).
[4] Fr. Neumann, Seifensieder Ztg., *52*, 43-4 (1925).
[5] K. Braun, Seifensieder Ztg., *51*, 8045 (1924).
[6] K. Braun and H. Waber, Seifensieder Ztg., *54*, 430-1 (1927).
[7] H. Nast, Seifensieder Ztg., *52*, 149 (1925).
[8] H. Nast, Seifensieder Ztg., *52*, 493-4 (1925).
[9] K. Braun and H. Nast, Seifensieder Ztg., *53*, 431-3, 45--1 (1926).
[10] N. Nast, Seifensieder Ztg., *52*, 559 (1925).
[11] Private communication from Buffalo Electrochemical Co.

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Soap bleached by hypochlorites is rendered odorless by heating for several hours to temperatures of over 100° C. under pressure, with oxygen compounds of sulfur, such as sodium bisulfite. I. G. Farbenind. A.-G. German Patent No. 598,780.

CRITICIZES SOAP ANALYSIS METHOD

C. W. Crowell of the Rochester Germicide Co., Rochester, N. Y., in a letter to the editor of SOAP, criticizes a method recently extracted in the publication for determining the anhydrous content of liquid soap. He states:

"In the July issue of SOAP you published a new method for determining the anhydrous content of liquid soaps, apparently published first in 'The Chemist Analyst,' by a Mr. Norris W. Mathews. Either your transcript of the article, or the original writeup was incomplete, or else Mr. Mathews' work was very incompletely done. The test, as we have found in our laboratories, is fairly correct, checking within 0.3 of one per cent with the standard method of procedure, when used on a simple coconut oil soap, but is absolutely worthless, on liquid soaps containing mixtures of oils. As examples, a 14.5 per cent anhydrous soap, composed of 10 per cent Olive Oil and 90 per cent Coconut Oil, gives a reading of 3.5, or a result according to Mr. Mathews, of 20.25 anhydrous soap. Similarly, an 18 per cent anhydrous soap, containing 5 per cent Olive Oil, and 95 per cent Coconut Oil, also gives a reading of 3.5, or 20.25 per cent anhydrous.

"We call this matter to your attention, for we are quite sure that SOAP does not wish to misinform its readers. The article should have been qualified to read, 'For simple soaps, comprised only of coconut oil and potash'. We are all keen to develop a test which is simple and rapid, but a thorough examination of all blended soaps must be made before a test should be published which can so terribly mislead the layman as Mr. Mathews' test does."

—— ♦ ——

The Finkener method for the determination of the solidifying point of fats often fails to work, or gives values which do not correspond to the true solidifying points. This is frequently the case for hardened train-oil mixtures, particularly when free fatty acids are present. By shaking the mass continuously during cooling, the difficulties of the old procedure are avoided, less time is required for the determination, and more reliable values are obtained. Jakob Lund. *Fettchem. Umschau* **41,** 86-90 (1934).

—— ♦ ——

To determine moisture in fatty mixtures in which free fatty acids predominate, determine the acid value before and after drying with anhydrous sodium sulfate. Subtract this ratio from 1 to get the percentage of water. When the acid value is lower than the ester value, a determination of saponification value is also needed. The method is also applicable to mixtures of free fatty acids with soap. Comparison with the distillation method shows the new method to be accurate, as well as simple. Ludwik Rzadkowski. *Przemysl Chem.* **17,** 219-20 (1933).

—— ♦ ——

A cleaning mixture comprises a liquid mixture of terpen alcohol, soap and water. Soc. pour l'ind. chim. a Bale. Swiss Patent No. 166,755.

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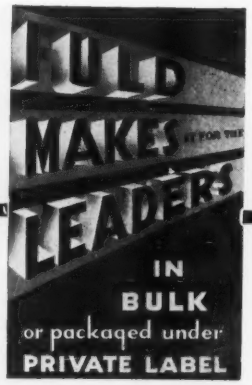

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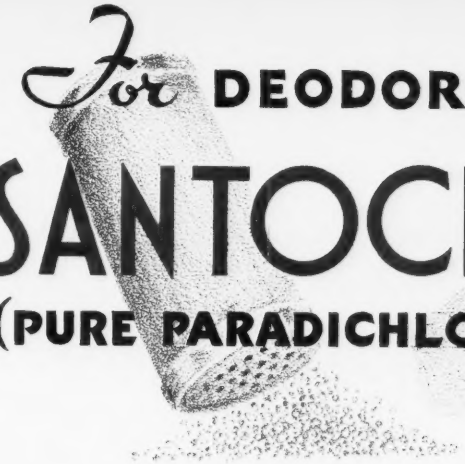

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We briefly enumerate here the common sense and obvious reasons why it is good business for you to buy Pyrocide 20 instead of buying and percolating the flowers.

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2. The "Average Price" method used by McLaughlin Gormley King Company permits them to sell below the market most of the time. If the market goes above their "Average Price", they make a greater profit by holding to that price and selling more Pyrocide 20 than they would by raising the price and selling less. If the market drops, they must, of course, meet the competitive price. No matter which way the market moves you get the benefit. In the past year, McLaughlin Gormley King's "Average Price" was lower than the market price 80% of the time.

3. Five graduate chemists are now associated with McLaughlin Gormley King Company. They are constantly engaged in research, study, and have contributed a great deal to the general knowledge of pyrethrum flowers. These men supervise every step in the manufacture of Pyrocide 20. Because of their knowledge and skill, the methods used by McLaughlin Gormley King Company are most efficient. You can let these men assume the responsibilities and problems of percolation for you.

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Use PYROCIDE 20 Your Own Flowers...

4. Much of the equipment used in the manufacture of Pyrocide 20 was perfected by McLaughlin Gormley King Company. It has cost thousands of dollars to build this equipment, which affords the latest and most efficient method of percolating flowers with the least loss of pyrethrins.

5. The pyrethrin content of flowers, as they arrive in cars, varies from .65% to 1.10%. The smaller purchaser may find his entire requirements at the lower extreme. A large purchaser has a much better chance to achieve a high average. In order to make this surer, McLaughlin Gormley King Company employs a chemist in Japan to select high pyrethrin content lots. No other supplier possesses this facility. Unfortunately, the guarantees of some foreign shippers cannot be depended upon. Furthermore, after February 1st it is practically impossible to obtain flowers that assay as high as .90%.

6. Pyrethrum flowers lose their effectiveness as they age. McLaughlin Gormley King Company percolates the flowers as soon as the fresh crop arrives and before these selected flowers have lost pyrethrins. Pyrocide 20 may be stored for long periods of time without loss of strength.

Buying pyrethrum flowers and percolating them is both a speculative business and one that requires a high degree of skill. The McLaughlin Gormley King Company are specialists in this line. Let them do the worrying. Buy Pyrocide 20.

Pyrocide 20 is shipped in steel drums containing 15, 30, and 53 gallons from warehouse stocks in New York, Los Angeles, Minneapolis, and several foreign cities. We also supply pyrethrum flowers of known pyrethrin content in whole, ground, or powdered form.

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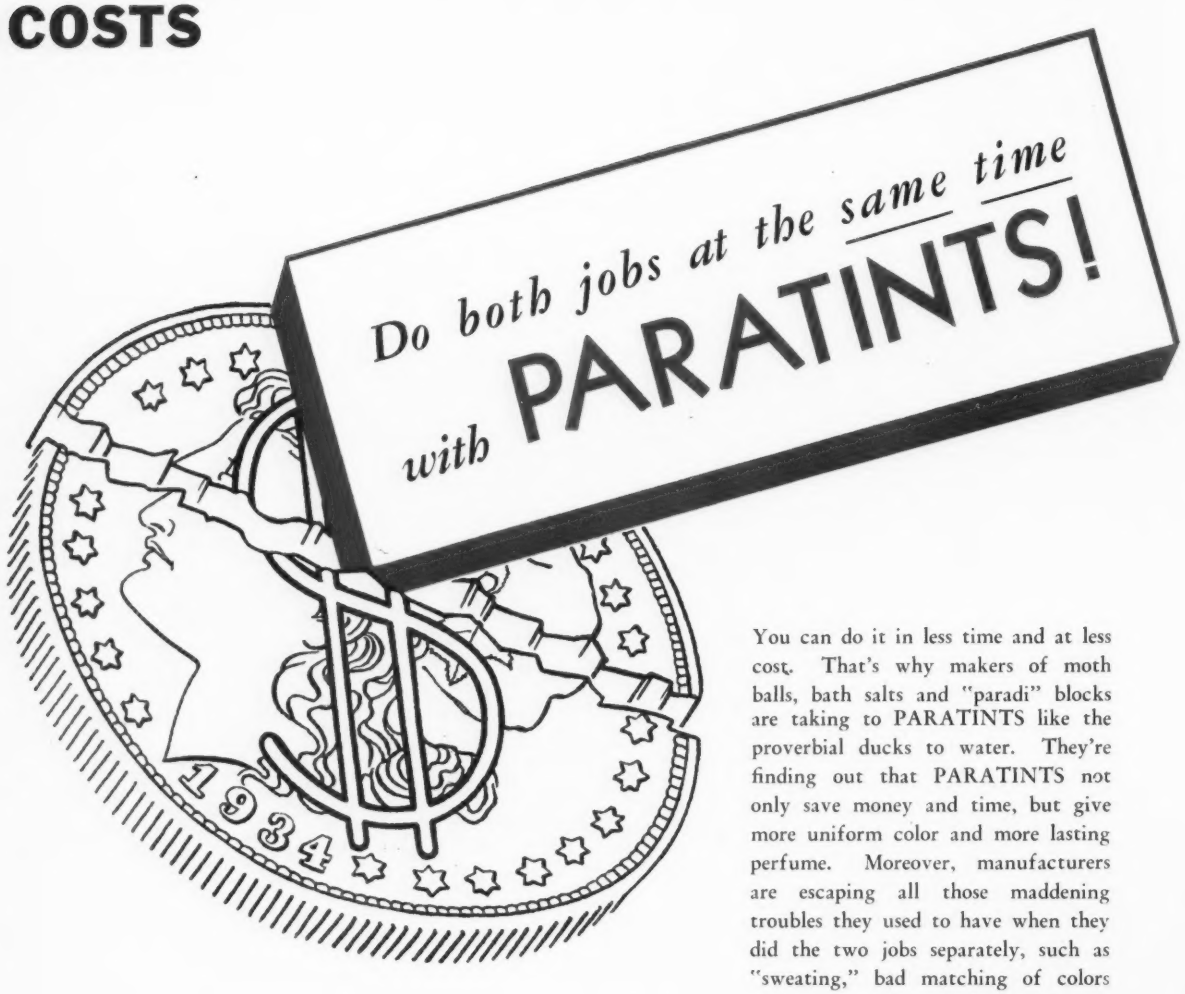
CUT YOUR COLORING AND SCENTING COSTS



You can do it in less time and at less cost. That's why makers of moth balls, bath salts and "paradi" blocks are taking to PARATINTS like the proverbial ducks to water. They're finding out that PARATINTS not only save money and time, but give more uniform color and more lasting perfume. Moreover, manufacturers are escaping all those maddening troubles they used to have when they did the two jobs separately, such as "sweating," bad matching of colors and too much paradichlorobenzene odor.

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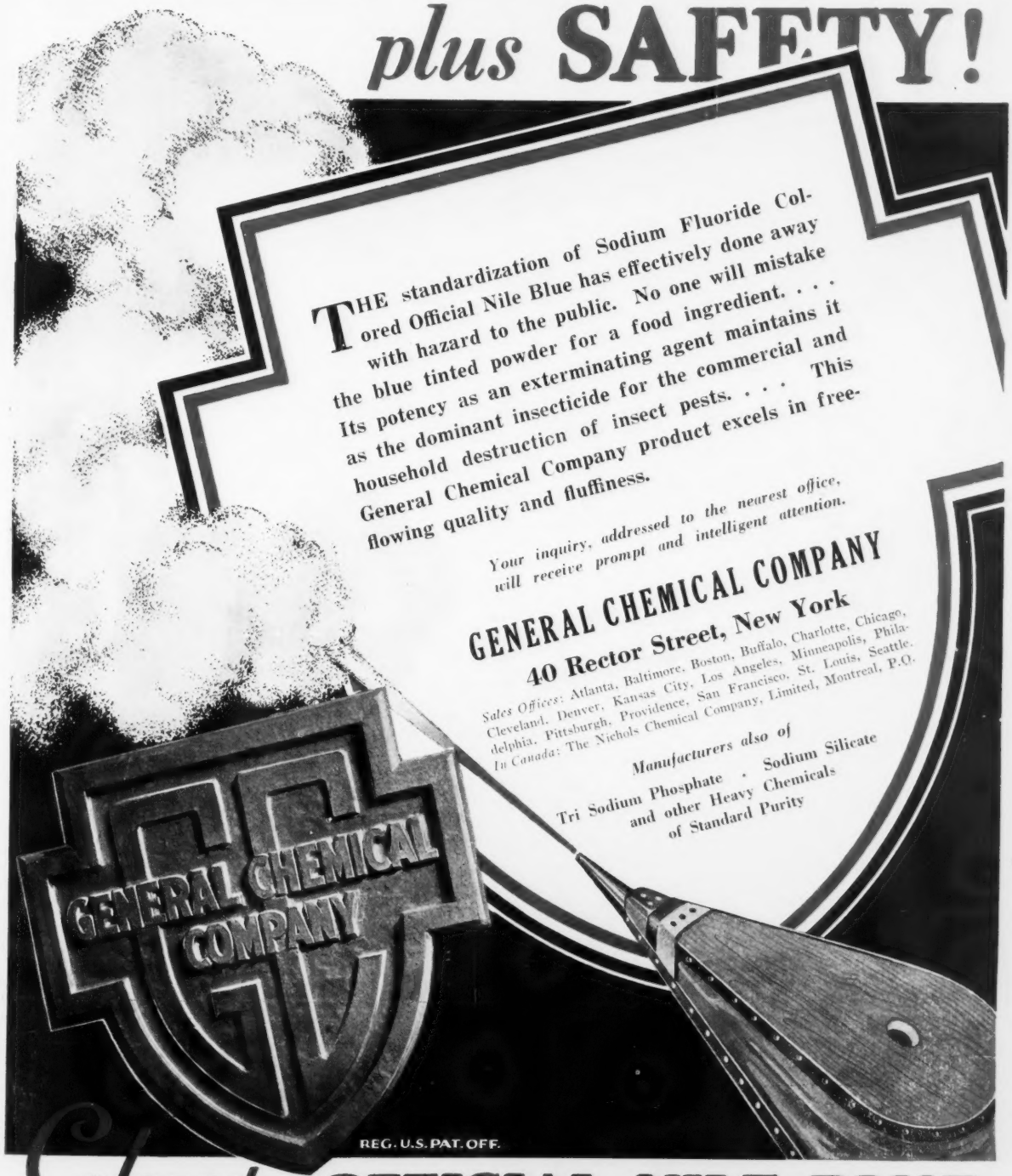

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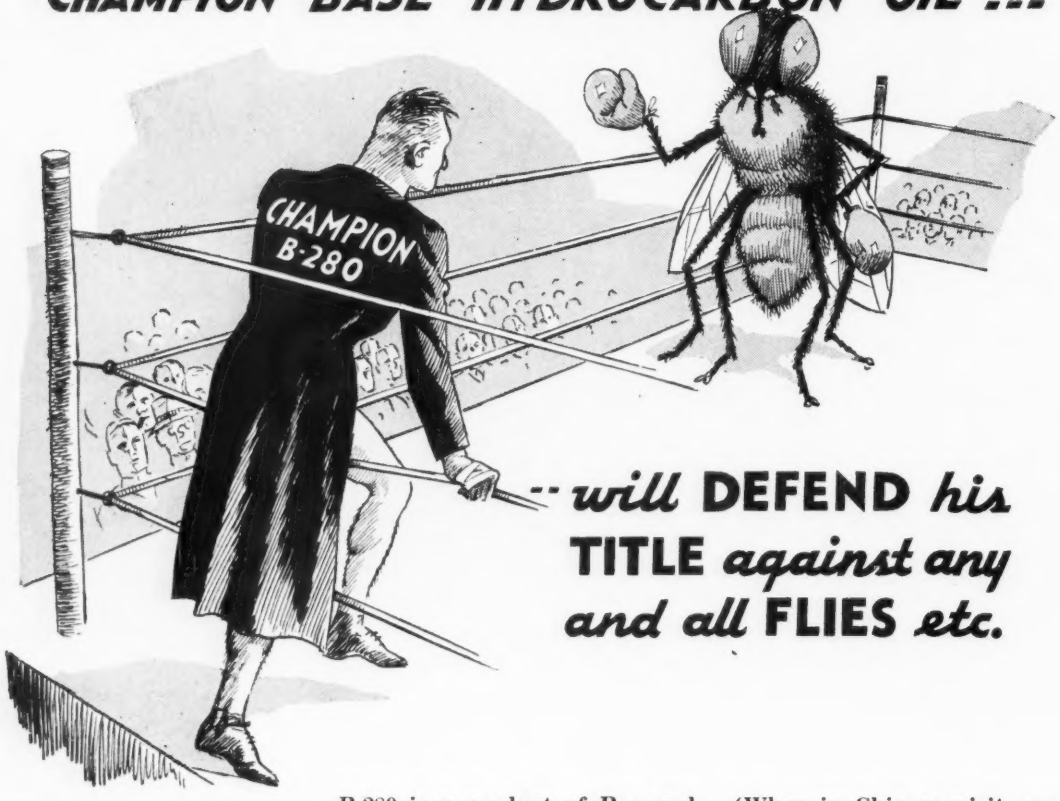

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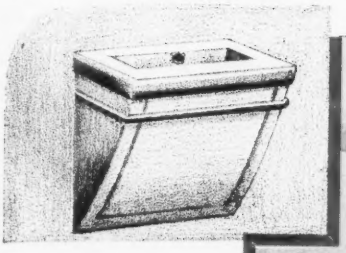

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SANITARY PRODUCTS

A Section of SOAP

Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

EDITORIAL

TO those in the insecticide and disinfectant industry who have inquired of us as to the status of the code and when and how its active enforcement would begin, we can reply only with such information which has come to us unofficially from Washington. The delay in operation of the insecticide and disinfectant code is apparently due directly to the NRA officials. As a result of their delay in approving the budget for code enforcement, we understand that the hands of the code authority have been tied by lack of funds. No money has been available for even the ordinary routine necessities of the Code Authority, and no money can be collected from the industry until such time as the budget is officially approved by the NRA.

♦

AT the present time, two studies are being conducted by the National Association of Insecticide & Disinfectant Manufacturers on vitally important subjects. One is a study of household insecticide sales from the angle of the manufacturer. The other is a study of compensation paid to salesmen of sanitary specialties and supplies calling on the industrial and institutional trade. These are solely fact-finding studies. The data will be correlated by committees and the composite facts will be presented for consideration and discussion at the annual meeting of the Association to be held in New York in December. The material will be published after the meeting. Some extremely interesting facts should be brought out,—facts of a wide value in the industry. If you are called upon for information, either in person or by questionnaire, it is earnestly hoped that you will lend your full cooperation. All information will be held in strict confidence as to its source. The names of firms supplying facts will not be known even to the committees who compile the data.

♦

IN this issue we publish the findings of two experts of the Food and Drug Administration of the U. S. Department of Agriculture on the variations in results which are likely to be secured in testing pine oil disinfectants by several recognized methods. Coming as it does from the law enforcement agency of the United States Government for the Insecticide Act of 1910, it is to be recommended that every manufacturer and distributor of pine oil preparations peruse it with extreme care.

♦

NOW is the time when wise insecticide manufacturers are laying their plans for the 1935 season. However, there are several very large and pressing problems which the industry must solve if it does not want 1935 to be a repitition of 1934,—and not the least of these is the trend of sales of small packages.

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Notes of the Trade

Roberts Products Co., insecticides, Pittsburgh, has occupied new quarters at 5920 Bryant St.

Langwell Chemical & Mfg. Co., West Garfield Ave. and North 7th St., Milwaukee, plans shortly to put on the market a line of agricultural insecticides, raticides and insecticidal liquid soaps.

The baseball team representing McCormick & Co. in the Baltimore Industrial League finished the season in first place, with thirteen victories and only two defeats. The team was managed by Dr. A. E. Badertscher, McCormick's entomologist.

Dr. Robert C. White of the Robert C. White Co., Philadelphia, and chairman of the Code Authority of the Insecticide and Disinfectant Industry, accompanied by Charles P. McCormick, president of McCormick & Co., Baltimore, photographed aboard Dr. White's cruiser, *Bob White*, while on a recent cruise in Delaware Bay.

Sweeping Compound Manufacturers Co., New York, has been incorporated by Martin Siegelbaum, 165 Broadway.

Vogel-Ritt, Inc., Philadelphia, exterminators, has appointed Jerome B. Gray & Company, advertising agency of that city, to handle its advertising account. Newspapers and direct mail will be used.

Lehn & Fink Products Co. reports net profit of $97,143 for the second quarter of 1934, comparing with $199,741 in the preceding quarter and $196,563 in the second quarter of 1933.

A recent British inquiry by T. H. Dryden into the subject of cockroach extermination has brought forth the suggestion that the use of coffee grounds as a luring odor is an excellent means of eradicating this pest.

Testing Pine Oil Preparations

Some Influencing Factors in Disinfectant Testing With Particular Reference to Emulsifiable Pine Oil Preparations

By C. M. BREWER and G. L. A. RUEHLE*

Food and Drug Administration, U. S. Dept. Agriculture

IT HAS been shown[1],[2] that the three well-known methods of determining phenol coefficients—the H. L., the R-W, and the F. D. A. Methods—give comparable results on most of the commercial coal tar and pine oil disinfectants. Such differences as we have found have generally been in the direction of slightly higher results with the R-W Method—the greatest discrepancies being in those preparations having high phenol coefficients. More recent work, however, has revealed sharp differences in many cases between the F. D. A. and R-W Methods when used on pine oil preparations. In the majority of these instances distinctly higher results were obtained by the R-W test—in some cases the discrepancy amounting to a five-fold difference.

An attempt to account for these differences by a consideration of the variations in the proportions of the ingredients of particular emulsions has not resulted in a satisfactory explanation. Moreover, the nutritive value of the media used for cultivation of the test organisms after the exposure to medication (subculture media) in the two methods is not the decisive factor. This is shown by the results given in Table I in which the same pine oil preparation is tested by both methods and subcultured into both media in each test.

TABLE I

Pine Oil Emulsion "A"[3]

(a) Readings Obtained in F. D. A. Method by Subculturing Into

Dilutions	(1) F. D. A. Broth Minutes			(2) R-W Broth Minutes		
	5	10	15	5	10	15
1—125	+	0	0	+	0	0
1—150	+	+	+	+	+	+

(b) Readings Obtained in R-W Method by Subculturing Into

Dilutions	(1) F. D. A. Broth Minutes				(2) R-W Broth Minutes			
	2½	5	7½	10	2½	5	7½	10
1—400	0	0	0	0	+	0	0	0
1—450	+	0	0	0	+	0	0	0
1—500	+	+	0	0	+	+	0	0
1—550	+	+	+	+	+	+	+	0

[3] A commercial pine oil disinfectant containing 89% pine oil, 8% soap, and 3% water.

It has been known for several years that the same strain of Eb. typhi when grown in R-W broth is killed by a weaker cencentration of phenol than when grown in F. D. A. broth, but why this is so has never been explained. One of the principal differences between the two media is the greater salt (NaCl) content of the R-W medium. In addition to its greater amount of beef extract (containing 6.5% NaCl) R-W medium has 1% of added NaCl while F. D. A. medium has only 0.5% of added NaCl. The R-W broth, ready for use, contains 1.13%NaCl and the F. D. A. slightly less than one-half of this amount. Therefore, tests were made to show whether the addition of larger and smaller amounts of NaCl to F. D. A. broth would affect the resistance of the test organism to the pine oil emulsion. The results are given in Table II.

TABLE II

Results of Tests Using Various Percentages of NaCl in F. D. A. Broth Compared with Results Using R-W Broth (Pine Oil Emulsion "A" Was Used)

F. D. A. Technique

(F. D. A. Broth except with salt content as noted)

Dilutions	5 Min.	10 Min.	15 Min.	NaCl Present in Broth
1—60	+	0	0	
1—75	+	+	+	
1—100.....	+	+	+	.03%
1—100.....	0	0	0	
1—125.....	+	0	0	
1—150.....	+	+	+	.53%
1—300.....	0	0	0	
1—400.....	+	0	0	
1—500.....	+	+	+	1.13%
1—400.....	0	0	0	
1—500.....	+	0	0	
1—600.....	+	+	0	2.23%

R-W Test

(R-W Broth Containing 1.13% NaCl)

Dilutions	2½ Min.	5 Min.	7½ Min.	10 Min.
1—350.....	0	0	0	0
1—400.....	+	0	0	0
1—450.....	+	0	0	0
1—500.....	+	+	+	+

The foregoing tests show definitely that the NaCl content of the culture medium in which the test organism is grown is a critical factor in determining the phenol coefficient**. In the case of pine oil preparations the same results are obtained by both methods when the salt content of the broth is the same, and as the salt content of the broth is increased the killing power of the disinfectant is increased. It is believed that the salt acts by increasing osmosis, which (under certain conditions) facilitates the passage of the toxic agent of the pine oil into the bacterial cell†. The test organisms,

* G. L. A. Ruehle is Senior Bacteriologist, and C. M. Brewer, Associate Bacteriologist, of the Food & Drug Administration of the U. S. Department of Agriculture.

(1) Brewer, C. M., and Reddish, G. F., 1929—"A Comparison of The Hygienic Laboratory Test with the Method Used by The Department of Agriculture for Testing Disenfectants", Jour. Bact. 17: 44.

(2) Dreyfus, Wm., 1934—"Comparison of the F. D. A., H. L. and R-W". Soap, X (1): 91.

** For effect of salt on phenol control, see Table V.

† In this connection, see "Lethal Environmental Factors Within the Natural Range of Growth", by James M. Sherman and Geo. M. Cameron, Jour. Bact. 27 (4): 341, April, 1934. This paper appeared after the completion of our work and contains the following paragraph in the summary: "Drastic killing action is also obtained with abrupt changes in osmotic pressure without going beyond the limits suitable for growth for example, transfer from 1% peptone to 1% peptone containing 5% sodium chloride and vice versa".

grown in the R-W medium of a relatively high salt concentration as compared with the F. D. A. medium, are plunged into a dilute emulsion of low osmotic pressure‡, resulting in rapid absorption from this dilute emulsion. The same fact is more strikingly shown by the next test (Table III) where pure non-emulsified steam distilled pine oil was shaken up with water which gives a poor suspension of low osmotic pressure. The test organism was grown in broth§ with no added salt and in broth with 2.23% salt.

TABLE III

Pine Oil Suspended in Water; With and Without Added Salt

	0.03% Salt			2.23% Salt		
Dilutions	5 Min.	10 Min.	15 Min.	5 Min.	10 Min.	15 Min.
1—8	+	+	+			
1—300....				0	0	0
1—400....				0	0	0
1—500....				0	0	0
1—600....				+	0	0

If the above effect is due to an enhanced osmosis, as appears to be the case, then by raising the osmotic pressure in the emulsion ("medication mixture") a lessened bactericidal effect should result. Since the use of NaCl for this purpose would result in breaking the emulsion, various amounts of sucrose were used, with the results given in Table IV.

TABLE IV

Tests of Pine Oil Emulsion "A", Using Test Organisms Grown in Broth of Different Concentrations of NaCl and Diluted Disinfectants Containing Various

Concentrations of Sucrose

(a) Sugar Free

	No. 1 0.03% NaCl in Broth			No. 2 2.23% NaCl in Broth		
Dilutions	5 Min.	10 Min.	15 Min.	5 Min.	10 Min.	15 Min.
1—60	+	0	0			
1—75	+	+	+			
1—400....				0	0	0
1—500....				0	0	0

(b) Containing Sugar

	No. 1 18 g. Sucrose per 100 c.c. added to the test emulsion. 1.1% NaCl in culture medium (broth).			No. 2 26 g. Sucrose per 100 c.c. added to the test emulsion. 2.23% NaCl in culture medium (broth).		
Dilutions	5 Min.	10 Min.	15 Min.	5 Min.	10 Min.	15 Min.
1—60.....	+	+	+	+	+	+
1—75.....	+	+	+	+	+	+

	No. 3 18 g. Sucrose per 100 c.c. added to the test emulsion 2.23% NaCl in culture medium (broth).		
Dilutions	5 min.	10 min.	15 min.
1—60.....	±	0	0
1—75.....	+	+	±
1—90.....	+	+	+

The results given in Table IV indicate quite clearly that when the osmotic pressure of the diluted disinfectant is increased, the absorption of the germicide into the cells is markedly reduced which, as was expected, is exactly opposite from the results in Table III where the osmotic pressure is considerably greater in the test organism suspension than in the diluted disinfectant. The amount of sucrose added in (b) No. 1 and (b) No. 2 is more than, and in (b) No. 3 less than, the amount calculated to balance the osmotic effect of the NaCl. It is noted that when the amount is greater than that calculated to balance the osmotic pressure of the salt in the culture medium, the germicidal activity is decreased below that observed in (a) No. 1 when the culture was grown in a medium with no added salt. When the amount of sugar added is somewhat less than the calculated amount, the bacteriological results show a germicidal effect a little higher than in (a) No. 1. The diluted emulsion of course possesses a higher osmotic pressure than water and since this was not determined no attempt was made to add the exact amount of sucrose required to balance the salt. The results in (b) No. 3 indicate that the amount added was approximately correct.

The high salt content of the R-W medium also contributes to the higher coefficient figures obtained by the R-W Method for coal tar disinfectants with high coefficient values. In the testing of low coefficient coal tar preparations, dilution is not carried to the point where the osmotic pressure is greatly reduced, while in the case of high coefficient preparations the high dilutions necessary begin to approach the physical character of water and hence the osmotic pressure from the high salt content of the R-W medium becomes increasingly important.

An example of the effect of salt in the culture medium is shown by the following test with a typical high coefficient coal tar emulsion:

TABLE V

Effect of Salt in the Test Culture Medium on the Resulting Phenol Coefficient of a Coal Tar Emulsion Disinfectant. Tests Run at 20° C. Using 0.5 cc. of Culture

	Medium Without Added Salt			Medium With 2.2% Salt Added		
Dilutions	5 Min.	10 Min.	15 Min.	5 Min.	10 Min.	15 Min.
1—1000....	0	0	0			
1—1100....	+	+	0			
1—1200....	+	+	+			
1—1400....	+	+	+			
1—1800....				+	0	0
1—2000....				+	+	0
1—2200....				+	+	+
Phenol						
1—90.....	+	+	0			
1—110.....				+	+	0

Phenol coefficient $\frac{1100}{90} = 12.2$ Phenol coefficient $\frac{2000}{110} = 18.2$

While the difference in results obtained by the two methods frequently can be explained on the basis of the concentrations of salt in the test suspension and culture media, we have been unable to apply this explanation to results obtained on all pine oil disinfectants encountered in the trade. As previously mentioned, some pine oil emulsions show very little difference whether tested by the F. D. A. technique or the R-W technique, while others vary greatly. An attempt was made to indicate the relative osmotic pressure of various pine oil emulsions in an effort to determine how well they correlated with the results by the two methods (R-W and F. D. A.). This was done by immersing the emulsions, enclosed in

‡ Emulsions have relatively low osmotic pressure compared to solutions.

§ Except where otherwise specified the broth mentioned in this paper contained the same amounts of peptone and meat extract as F. D. A. Broth. The amount of salt present is stated in each case.

semi-permeable sacs (skin condoms), in a pan of water. The increase in weight of the emulsion in the sac was used as the measure of its relative osmotic pressure. Only a rough estimate could be made by this method since the membranes were permeable to the alkali resulting from hydrolysis of the soap, in consequence of which most of the emulsions broke to some extent. Also, the establishment of a Donnan membrane phenomenon with the change in pH, and absorption phenomena are possible. The following table indicates the different behaviors of several emulsions:

TABLE VI

Effect of Composition on the Osmotic Pressure and Phenol Coefficients

Pine Oil Disinfectant*	% of Pine Oil	% of Soap Used as Emulsifier	Kind of Soap	% of Water
A	89.1	8.2	Fatty Acid and Rosin	2.7
B	65.0	25.2	Rosin	9.8
C	62.5	28.1	Rosin	9.4
D	62.5	28.1	Fatty Acid	9.4

	Increase in Weight of 20 Gms. Pine Oil Emulsion After Immersion in Water for 24 Hours	Phenol Coefficients	
	Grams	F. D. A. Method	R-W Method
A	37.	1.4	5.0
B	204.	2.2	3.3
C	179.	2.8	3.3
D	254.	4.0	4.0

* A and B were commercial samples. C and D were made in the laboratory from the same steam distilled pine oil, which was used in the unsaponified pine oil suspension tests.

In the above table "A," "B" and "D" show again that "osmotic pressure" is an important factor in explaining the divergent results by the two methods. "A," with the least weight increase, has the widest divergence. It will be observed, however, that the differences between the divergent coefficients and the weight increases are not inversely proportional. "D," with a weight increase figure 7 times that of "A," shows no difference in coefficients, while "B," with a figure 5½ times that of "A," still shows wide divergence—in fact, half-way between "A" and "D". Further, "C" with a similar weight increase to that of "B" nevertheless shows less divergence of coefficients; apparently some other important factor is operative. It will be noted that "A" has a comparatively small amount of soap; "C" has more soap than "B"; while "D" has a different type of soap. In the case of "D," using fatty acid soap, an emulsion can be made with one-half the amount of soap used. So it is seen that the greater the proportion of soap the less the divergence in coefficients. This suggests that an excess of soap, a powerful surface tension depressant, may be another very important factor in the germicidal effectiveness of this type of disinfectant. If the reduction of surface tension, due to excess soap, does account for the increased efficiency of these pine oil emulsions, then the addition of soap to those emulsions with no excess of emulsifying agent (as in "A" above), or to a suspension with no emulsifying agent (as in pine oil suspension in Table IV and in Table VII), should result in killing the test organisms at greater dilutions. Such is shown to be the case in the following tests:

TABLE VII

Effect of Addition of Soap to Emulsions. Test Culture Grown in Medium Without Added Salt

Emulsion	Dilutions	No Additional Soap			Addition of 0.1% Fatty Acid Soap		
		5 min.	10 min.	15 min.	5 min.	10 min.	15 min.
"A"	1—60	+	0	0			
	1—75	+	+	+			
	1—300				0	0	0
	1—400				0	0	0
					+	0	0
Pine Oil Suspension in Water	1—8	+	+	+			
	1—300				0	0	0
	1—400				0	0	0
	1—500				+	0	0

It is an accepted fact that osmotic pressure and surface tension are very important factors in the activity of disinfectants. These figures emphasize this and show further that with certain disinfectant preparations these factors should be taken into consideration in routine testing of disinfectants.

In practical disinfection it is, of course, impossible to know in every case the characteristics of the medium in which the particular organism to be combatted grew, but in the habitats of pathogenic bacteria outside the body, undoubtedly the osmotic pressure in most cases will be less than that of physiological salt solution and much less than that of the R-W medium. Therefore, the organisms will be more resistant to the action of disinfectants than when grown in R-W medium. The osmotic pressure of F. D. A. broth approaches much more nearly physiological salt solution and in our opinion the F. D. A. test furnishes a much safer guide to the practical application of the product.

———♦———

Derris elliptica roots gave the maximum amount of ether extract when harvested at the age of 21 to 23 months. Analysis of 21 different samples of derris roots on a moisture-free basis and with ether for extraction showed a crude rotenone content of 0.02 to 1.68 per cent. Of 6 different varieties of derris roots *Derris elliptica* had the highest rotenone content (6.65 per cent) and *Derris polyantha* next (3.15 per cent). Considerable variation was found between the rotenone contents of the fine and coarse roots of the same sample. The sale of derris is best regulated by analyses. F. T. Adriano. *Philippine J. Agr.* 5, 1-16 (1934).

———♦———

Pyrethrum may produce the death of insects without reaching the stomach. Pyrethrins can penetrate the integument of the insects. Pyrethrins have a low but appreciable solubility in water. Dissolved in the body fluids they reach the nerve ganglia where their toxic effects take place. Albert Hartzell and Frank Wilcoxon. 5th. *Congr. Intern. Entomol.*

———♦———

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Evaluating Liquid Insecticides

A New Method for Evaluating the Relative Toxicity of a Liquid Insecticide

By F. C. NELSON, H. E. BUC, N. A. SANKOWSKY, and M. A. JERNAKOFF
Stanco Incorporated

IN ATTEMPTING to develop methods for testing liquid insecticides, particularly those of the household type, it has always been felt by the writers that it would be highly desirable to have some way of definitely measuring the exact volume of insecticide that reached each individual insect. It was recognized that one of the greatest weaknesses of the usual type of test in use was the fact that there was no control of the quantity of the spray reaching each insect and, as a result, there must always be considerable variation in the number of liquid spray particles touching each insect. We felt that by actually measuring the volume of liquid used per insect, we could reduce the total number of insects necessary to obtain a reliable test, thus reducing the time necessary to obtain comparative tests and also reduce equipment and labor expense. The method herein described, called the "Drop-Test," was developed through the cooperation of various members of both the Standard Oil Development Company and Stanco Incorporated.

The first attempt of this type was made by fastening an insect, such as the cockroach, on a small holder so that a measured volume of liquid could be injected directly into one or more spiracles with a micro-syringe operated under a binocular microscope. This method proved to be extremely slow and very hard on the eyes, inasmuch as the operator had to use the microscope almost continuously. It also complicated results in that the insect sometimes moved just at the time the micro-syringe was in the spiracle with the result that a puncture in the tracheal wall sometimes occurred, thus building up a falsely high mortality not due to the material injected. After some considerable work of this nature, we finally omitted the injection into the spiracles and simply placed the liquid on the center of the ventral surface of the thorax as nearly midway between the thoracic spiracles as possible. It was found that such application gave a comparatively uniform spread of the liquid to the large thoracic spiracles and satisfactory results were obtained. A small hypodermic syringe was first tried for the application of the toxic agent, but it proved to be somewhat awkward and did not readily lend itself to accurate measurements. It was therefore replaced by a small capillary pipette which was drawn from glass in the laboratory and will be described in detail below.

In making up pipettes for this test, it was necessary to reduce the tubing to a very small diameter in order to enable the operator to apply a dosage small enough to keep the resulting kill within the 50 per cent range. We started with a three or four millimeter glass tube and drew it out to a very fine capillary opening. The tube used was about 6 inches long at the start and was heated in the center and drawn out to a suitable capillary size. This was then cut in half and the two resulting pipettes were about 4 inches long, the large end about 2½ inches and the tapered capillary portion about 1½ inch in length.

This pipette was then calibrated in the following manner: The pipette was first marked off into several divisions with a soft wax pencil and several lots of flies were treated with a mixture of 1 part of the insecticide plus 9 parts of absolute ethyl alcohol to determine the volume necessary to give approximately a 50 per cent kill. After having arrived at the proper dosage by such measurements, the volume of the chosen dosage was calculated by drawing mercury up into the capillary to the proper level and running it out into an accurately tared weighing dish. This was repeated ten times, for the sake of accuracy, the total weight of the mercury in the dish then being divided by ten to give the weight of mercury corresponding to the measured volume of the pipette.

On the basis of the above tests, using a mixture of 1 part of the insecticide plus 9 parts of absolute ethyl alcohol, the proper weight of mercury for German cockroaches (Blatella germanica), was found to be 66.5 mg. This weight divided by the specific gravity of mercury gave us 5 cubic millimeters of liquid, which was the proper liquid dosage of the diluted insecticide for such roaches. The proper weight of mercury for house flies (Musca domestica) was determined to be 9.975 mg. and again this was divided by the specific gravity of mercury which gave 0.75 cubic millimeters of liquid. Having thus established the proper weights and volumes of mercury to be used, it was then a simple matter to calibrate any new pipettes that had to be made from time to time. This calibration procedure was, of course, necessary for any new type of insect used.

Dilution of Insecticides

IT WAS found early in the work that in spite of the fact that we used this extremely small capillary tube, we could not secure satisfactory results with the insecticide under test without some method of diluting the insecticide enough to reduce the percentage of kill to the 50 per cent average. Additional "water white" could have been added, of course, but all "water white" pos-

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sesses considerable toxicity and such an addition would have complicated results. Three other diluents were tried with the idea of obtaining something comparatively non-toxic to the insect but stable and satisfactory for dilution purposes.

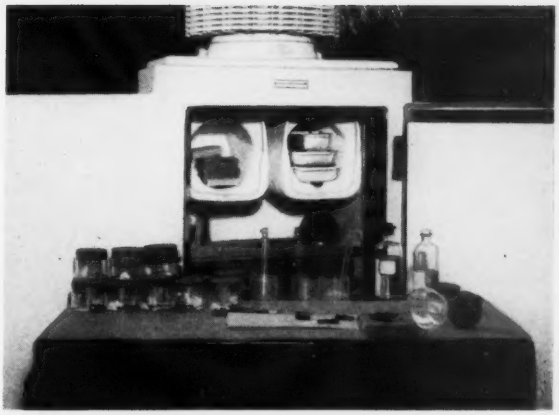
Absolute methyl alcohol, absolute ethyl alcohol and 98 per cent isopropyl alcohol were used on flies and both the methyl alcohol and isopropyl alcohol gave considerable kill. The absolute ethyl alcohol was practically innocuous to the insect and was therefore adopted for dilution work. The absolute alcohol was, of course, necessary to allow its use with oil solutions. It was realized that absolute ethyl alcohol was difficult to obtain, but inasmuch as only very small amounts were necessary it was felt that most any testing laboratory could obtain the amount necessary for such experimental work. All subsequent testing was therefore done with the absolute ethyl alcohol mixed with the insecticide in the proper proportion, depending on the strength of the insecticide.

Volume of Insecticides Necessary

HAVING thus arrived at an ideal dosage for a certain type of liquid insecticide, it was then necessary to keep in mind the strength of the sample to be used. If, as in the case of some research samples, the strength of the insecticide was believed to be very high or very low, it was easily possible to regulate the dilution figure accordingly. In the case of an insecticide which we knew to be more toxic than the average, we used 12 parts of alcohol and 1 part of insecticide by volume, or, if the sample was unusually toxic, even greater volumes of alcohol were used. With weak insecticides, it was necessary to dilute the product with a smaller volume of alcohol. In this way it was found possible to maintain a kill of approximately 50 per cent without altering each time the dosage of liquid applied to the insect. When the operator first used the method, it was necessary to treat a few cages of insects to arrive at the proper dilution, but after he became thoroughly familiar with the various types of insecticides, it was usually possible to estimate such dilution without preliminary tests. The same results could, of course, be obtained by using larger volumes of weak solutions but this called for a number of calibrations and it was found to be much easier to make up the solutions with more or less alcohol than it was to vary the volume of liquid used per insect.

Insects Used

ONLY two types of insects were used to any extent in this work and they were the common roach (*Blatella germanica*) and the house fly (*Musca domestica*). The American roach (*Periplaneta americana*) was tried but did not give very satisfactory results and was discarded. The German roach and the house fly were readily available throughout the year, were easy to handle and were two of the most common household pests, and for these reasons were thought to be especially suitable for use in testing liquid household insecticides.



Showing the Equipment Needed for the New Insecticide Test Procedure

No doubt many other insects could have been used for this purpose but time was not available for trying them out and up to the present time no others have been used.

Handling the Insects

THE greatest difficulty encountered in the speedy application of this method was in the handling of the insects, particularly in the case of the house flies. It was practically impossible to fasten them in such a way that they could not get loose or without hurting them. Mr. Nelson had previously carried on considerable experimental work on marking honey bees for life history studies and it was found at that time that chilling bees just enough to quiet them did not appreciably affect the life of the bee after recovery. With this previous information in mind, roaches and flies were placed in screen wire cages and chilled in an electric refrigerator at temperatures varying from 45° F. down to 10° F. for periods of from one minute for the lower temperature up to thirty minutes for the higher temperature.

After a long series of tests it was determined that a chilling of from five to ten minutes in a temperature of about 30° F. gave a quiescent period of from four to ten minutes without affecting the eventual mortality. If the chilling was above 30° F., the time of exposure had to be increased but the temperature had to be kept down to approximately 35° F. to obtain satisfactory results. If they were exposed for too long a period at low temperatures, very severe mortality resulted just from such treatment. During the hot summer months, it was found that the inactive period after chilling was not sufficiently long to allow the treatment of a satisfactory number of insects and something had to be done to keep the insects quiet for longer periods. It was almost impossible to obtain a room cool enough to obtain this result without going to a lot of expense. As a possible alternative, unpolished marble blocks 5 inches square and about ¾ inch thick were placed in the ice unit of the electric refrigerator and thoroughly chilled. One of these blocks was removed with each cage of chilled insects and the

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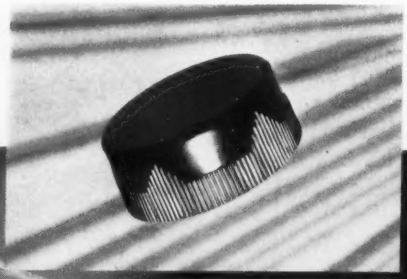

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insects were taken from the cage and placed on this cold marble slab. By this simple procedure it was found that plenty of time was given for treating thirty or more insects, which was the usual number treated at one time.

In chilling the insects, it was, of course, necessary to use more than the actual number desired for the test as there were always a few small insects or some extremely large ones which we found it necessary to discard. After placing the chilled insects on the marble slab, they were separated for uniformity and size and in case very accurate results were desired, they were also separated as to sex. Wherever possible, flies of the same age were used for each individual test. The separation as to sex was found to be especially important when cockroaches were used. With cockroaches it was essential that full grown roaches were used, or if by chance partly grown roaches had to be accepted, they were picked from as nearly the same instar as we could determine. If this selection was not practiced, uniform results could not be obtained except by the use of a very large number of insects to eliminate differences due entirely to age or sex.

After treatment, the insects were placed in a glass dish approximately 2 inches high and 2¾ inches in diameter, with a screen cover over the top to prevent the escape of the recovering insects. A large cork, open in the center, with screen tacked over the opening was later used in place of a complete screen cover and was much easier to handle. It made little difference what was used for this purpose as long as fresh air was allowed to enter and the insects were prevented from escaping. Food and moisture was supplied in each dish by wetting a small piece of cotton in water and then dipping it in powdered milk. The dishes were then set aside in a room of uniform temperature, for later observation. These subsequent readings were made at any time desirable but a final reading was always made at a twenty-four hour period after treatment. Such readings were facilitated by marking on each jar the total number of flies treated. The cover was then removed at the final reading and all active flies allowed to escape, which made it necessary to examine only the actual dead or moribund flies remaining in the dishes. Active, moribund and dead calculations were made and every attempt was made to keep the kill approximately 50 per cent at the twenty-four hour period. We found that three hundred flies per sample would give us a good indication of toxicity and if very accurate results were desired 600 flies were ample. This, of course, depended a great deal on the character of the test materials. If all the test liquids were made up of materials very similar but differing in concentration, three hundred flies were usually enough.

If, however, the samples were widely different in character, it was much safer to use six hundred flies or even more, if time permitted. When carefully selected roaches were used instead of flies, we found that one hundred adults would give entirely satisfactory results. Any other insects used would have to have their required number determined by actual preliminary testing. The time necessary to complete a series of tests was determined to a great extent by the speed of the tester and secondly by the availability of insects and the species used. Under ordinary conditions, we have found that 600 to 300 flies can readily be treated in one day and after the operator becomes thoroughly familiar with the method, more than that can be run if desired.

Table I

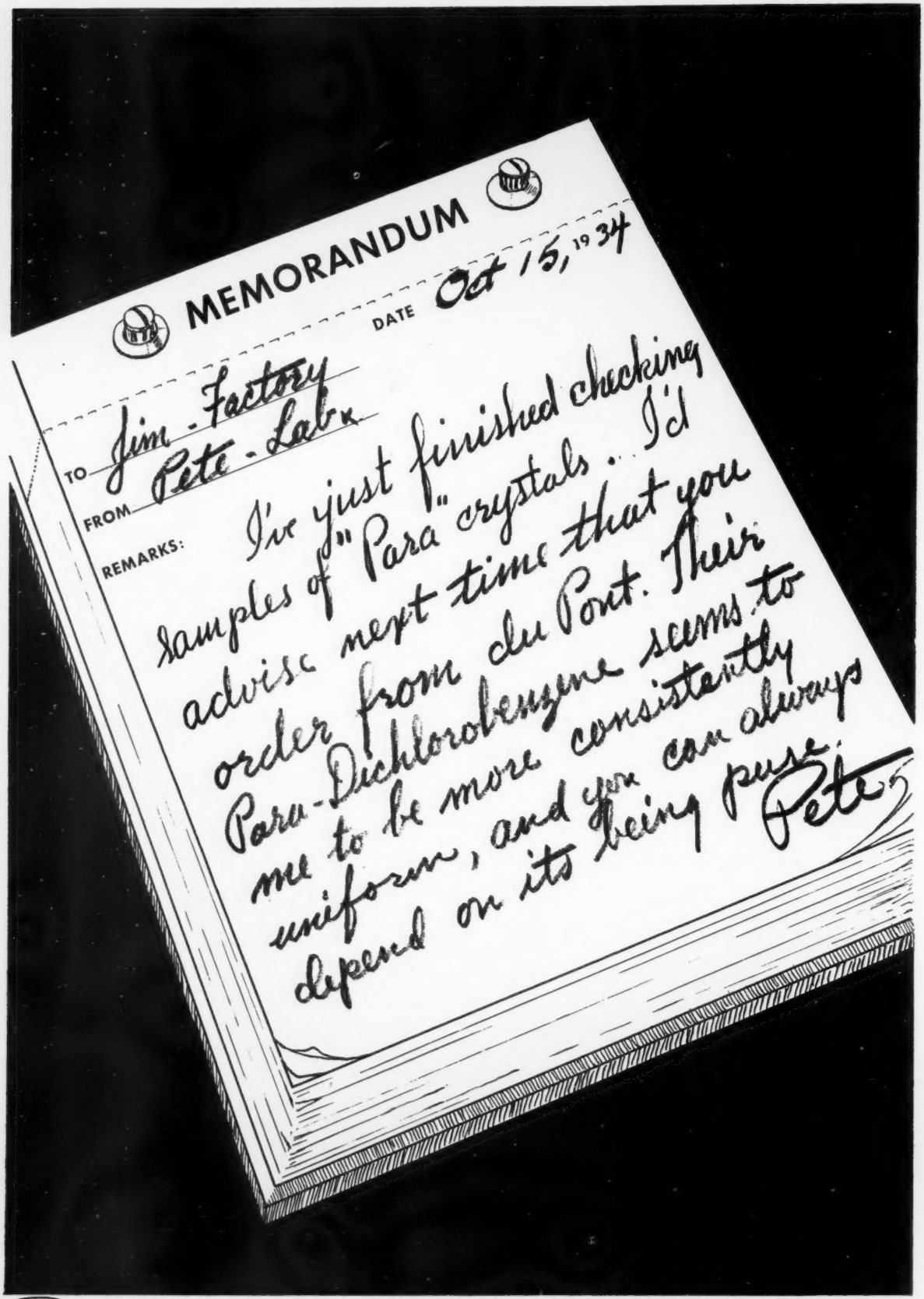
Drop test on house flies, using two samples, A & B, of exactly the same composition. Run over a three-day period.

Sample A			Sample B		
Total Flies Per Jar	% Dead & Moribund in 24 Hrs.	% Dead & Moribund in 24 Hrs.	Total Flies Per Jar	% Dead & Moribund in 24 Hrs.	% Dead & Moribund in 24 Hrs.
First Day					
30	25	83	30	15	50
30	19	63	30	20	67
30	23	77	30	26	87
30	18	60	30	17	57
30	17	57	30	17	57
30	17	57	30	20	67
30	13	43	30	17	57
30	23	77	30	14	47
30	17	57	30	15	50
Tot. 270	172	574	270	161	539
Av.		64%			60%
Second Day					
30	19	63	30	21	70
30	23	77	30	16	53
30	23	77	30	16	53
30	16	53	30	16	53
30	17	57	30	24	80
30	22	73	30	19	63
30	24	80	30	24	80
30	17	57	30	18	60
30	11	37	30	22	73
30	21	70	30	17	57
Tot. 300	193	644	300	193	642
Av.		64%			64%
Third Day					
30	25	83	30	17	57
30	18	60	30	22	73
30	18	60	30	26	87
30	21	70	30	19	63
30	21	70	30	17	57
30	18	60	30	18	60
30	20	67	30	21	70
30	23	77	30	23	77
30	15	50	30	22	73
Tot. 270	179	597	270	185	617
Av.		67%			69%

The results in the above table showed very clearly that tests run with this method were reliable and checked themselves within a few per cent. It also showed that the first day's results on approximately 300 flies gave just as accurate results as when the second and third day's results were included. It occasionally happened in previous work that this was not always true and it was because of this occasional variation that we recommended the use of at least 600 flies per sample when extremely accurate results were desired. These tests were run over a considerable period of time and indicated clearly that the flies used were of uniform strength, at least during the time of this work.

Fly Breeding Procedure

THERE is no particular need of going into detail on this subject as it has already been covered in previous articles of Dr. C. H. Peet, A. G. Grady and others. The matter of age might be mentioned, however. We have used flies newly emerged and from then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on up from 1 day, 2 days, etc., and the newly emerged flies have given us equally as reliable and consistent results as two or four day old flies, as long as flies of the same age were used throughout the test. Old flies should not be used and probably the five-day limit set by other workers is just as necessary here as in the Peet-Grady chamber method. The use of newly emerged flies facilitated the work as it was not necessary to transfer the flies from breeding cages to stock cages. Instead, they were transferred directly from breeding jars to test cages as needed every day and any balance at the end of the day was transferred to the breeding cages and used for egg-laying purposes.

As a point of information, we decided to carry on some special breeding work with house flies in an attempt to find out whether or not a fairly pure strain of flies might give us more consistent results or whether they might show a greater or a lesser resistance to fly sprays. We, of course, did not have pure strains to start with so we picked out specially promising males and females from the standpoint of size, uniformity, etc., and placed an individual unfertilized male and female from this selected group in breeding jars. These jars were covered with cheesecloth and mating occurred after such caging. In this way the female mated only with one male and each jar received eggs from only this one female.

These jars were then set aside until the larvae were full grown, at which time the jars that had the most larvae and the largest ones were again separated out and kept for fly emergence. When the adult flies from these jars emerged, the jar producing the best looking ifles for size, uniformity, etc., was then selected for future breeding work. From this jar the largest males and females were again selected to start other breeding jars. In this way all the progeny were produced from a single male and female, and even though the original male and female were not pure bred strains, they were at least unmixed except for the variations that may have been carried in each of the parent flies.

By constant selection for size, uniformity and any other desirable characteristics, test flies were produced that were somewhat more satisfactory than when promiscuous egg-laying was allowed. This selected stock was occasionally checked against other cross-bred stock and the results obtained never indicated any weakening in resistance due to inbreeding.

Tables herewith show that specially bred flies were somewhat more resistant than flies bred under regular conditions. While the actual per cent kills were no more uniform in the specially bred lot than in the regular breeding, the number of flies actually discarded was materially less as the size ran a great deal more uniform and thus reduced the total number of flies used. For ordinary purposes, however, it is doubtful if the differences were of great enough value in the special bred flies to offset the large amount of time and labor involved in the breeding procedure.

The following table shows a set of results obtained when using the specially bred flies against the regular production.

Table II

Drop test using samples A & B of the same composition on special inbred flies and regular bred flies.

	Specially Bred Sample A			Regular Breeding Procedure Sample B		
	Total Flies Per Jar	% Dead & Moribund in 24 Hrs.	% Dead & Moribund in 24 Hrs.	Total Flies Per Jar	% Dead & Moribund in 24 Hrs.	% Dead & Moribund in 24 Hrs.
Av.			61%			69%
			First Day			
	30	24	80	30	24	80
	30	20	67	30	23	77
	30	20	67	30	22	73
	30	23	77	30	25	83
	30	24	80	30	21	70
	30	13	43	30	21	70
	30	11	37	30	20	67
	30	19	63	30	22	73
	30	19	63	30	22	73
Tot.	270	173	577	270	200	666
Av.			66%			74%
			Second Day			
	30	20	67	30	24	80
	30	26	87	30	23	77
	30	16	53	30	24	80
	30	11	37	30	15	50
	30	19	63	30	17	57
	30	20	67	30	22	73
	30	15	50	30	25	83
	30	22	73	30	25	83
	30	16	53	30	26	87
Tot.	270	165	550	270	201	670
Av.			61%			74%
			Third Day			
	30	18	60	30	21	70
	30	21	70	30	26	87
	30	16	53	30	22	73
	30	22	73	30	19	63
	30	18	60	30	24	80
	30	18	60	30	20	67
	30	14	47	30	19	63
	30	20	67	30	17	57
	30	19	63	30	21	70
	30	16	53	30	19	63
Tot.	300	182	606	300	208	693
Av.			61%			69%

Separation of Sex

IT MAY sound like rather tedious work to separate males and females for breeding purposes and also for actual testing work, but it was done very quickly after the flies were chilled. First of all, after chilling, they were turned over on their backs and separated into groups of males and females. The separation was most readily done by observing a black spot on the tip of the abdomen of the male fly and the entire ventral surface of the abdomen was usually dark colored. The males were usually smaller in size and the compound eyes were set very close together. The black spot is usually missing on the female and the ventral surface of the abdomen is almost white. The compound eyes are set far apart with a shiny triangular silver colored marking showing between them. Many other minor differences may be seen on close examination but we found that they were not necessary for ordinary separation purposes.

(*Turn to Page* 105)

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Phenol Coefficient—What Value?

Is the Phenol Coefficient the Sole Criterion of the Value of a Disinfectant?—A Reply to C. C. Baird

By Dr. EMIL KLARMANN
Chief Chemist, Lehn & Fink, Inc.

THE following remarks refer to an article by Mr. C. C. Baird, entitled "High Coefficient Disinfectants" with the sub-title "Do They Represent the Greatest Germ-Killing Value Per Dollar of Cost to Average Consumer?" which appeared in the September, 1934, issue of *Soap*. The author of this article expresses some views which, in the light of present knowledge, appear to conflict with certain established scientific facts. Following are a few examples: "...the high coefficient product gives the consumer more for his money, is better to use and more sure in its results..."; "...a disinfectant with a coefficient of ten is better, from a purchasing standpoint, than one with a coefficient of five..."; "Disinfectants possessing high phenol coefficients will quickly kill practically every known form of disease bacteria and at comparatively small cost...".

It is not intended to dispute the raison d'etre of the "phenol coefficient" or to minimize its value. Furthermore, it is conceded readily that the compulsory declaration of the phenol coefficient on every package of a disinfectant may help to eliminate from the market some of the ineffective products, purported to be germicidal by their manufacturers, but, in fact, possessed of little or no germicidal value. But neither is it admissible to over-emphasize the significance of the "phenol coefficient", nor to give it an interpretation to which it is not entitled.

In voicing the views quoted above, Mr. Baird seems to disregard the well established fact that the phenol coefficient appearing on the package, unless otherwise qualified, is based upon tests with one micro-organism only, viz., B. typhosus, and that, as a rule, the *observed* effect upon this test-organism does not furnish any information as to the *possible* effects upon other kinds of germs. In other words, assuming that Disinfectant A shows, e.g., twice the phenol coefficient of Disinfectant B, Mr. Baird's several contentions would be partly acceptable if Disinfectant A were twice as potent as B, not only with regard to typhoid germs, but also with regard to other vegetable pathogenic micro-organisms, such as staphylococci or streptococci.

Unfortunately, such is decidedly not the case. The phenol coefficient obtained with B. typhosus as test-organism does not delineate the germicidal action of a given disinfectant preparation upon all micro-organisms. It cannot, therefore, be regarded as a "yardstick" by which to measure the value of disinfectants. This has been demonstrated clearly in several papers the complete discussion of which would by far exceed the limits of this communication. However, attention should be called at least to the relevant work of C. M. Brewer and G. L. A. Ruehle, published in "Industrial and Engineering Chemistry", 23, 150 (1931), the results of which appear to refute Mr. Baird's views rather thoroughly. These authors compared the germicidal effects upon B. typhosus and Staph. aureus of a large number of tar oil and cresylic disinfectants, and concluded that any definite quantitative relation between the germicidal effects upon these two test-organisms was completely lacking. Some examples chosen at random from the data communicated by Brewer and Ruehle will serve as an illustration.

Thus several tar oil disinfectants with a B. typhosus phenol coefficient of 3.9 showed a Staph. aureus phenol coefficient of only 0.33, while several others with the lower B. typhosus phenol coefficient of 1.7 nevertheless gave the much higher Staph. aureus coefficient of 0.66. In these cases, therefore, there was not only no parallelism between the germicidal effects upon the two micro-organisms, but on the contrary, certain preparations which Mr. Baird would classify on the basis of their B. typhosus coefficients as being of a lower value than the others, nevertheless were found to be of much greater value when Staph. aureus was used as the test-organism.

While the above figures refer to the group of the so-called tar oil disinfectants only, i.e., preparations which upon dilution with water give milky emulsions, the comparison of this group of disinfectants with that of the cresylic group (comprising products which give clear solutions with water) also proves to be instructive. Thus several cresylic disinfectants with a B. typhosus phenol coefficient of 2.8, showed Staph. aureus coefficients ranging from 1.67 to 2.67, while in the series of the tar-oil disinfectants, with the same B. typhosus phenol coefficient, the Staph. aureus coefficients ranged from only 0.17 to 0.83; in other words, of two different groups of disinfectants (but both derived from coal tar), with the same B. typhosus phenol coefficient (and therefore of the same value, according to Mr. Baird) one group contained compounds ten to thirty times more potent with regard to Staph. aureus than the other. It may be mentioned in passing that this difference in the germicidal effects of the two groups of disinfectants had been found previously to be caused by an inhibitory action of the coal-tar hydrocarbons upon B. typhosus

(*Turn to Page* 101)

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Trefle No. 619	2.85
Violet No. 611	3.10
Wild Flowers No. 5300	1.75

Used one ounce to two gallons of alcohol—either full strength or diluted

for water base sprays

	Lb.
Bouquet W. S. No. 636	$3.25
Honeysuckle W. S. No. 561	2.25
Narcissus W. S. No. 3855	2.75
New Mown Hay W. S. No. 260	2.50
Lilac W. S. No. 19	2.50
Oriental W. S. No. 3858	2.50
Rose W. S. No. 560	2.75
Trefle W. S. No. 4855	3.00
Violet W. S. No. 261	2.75

Used one ounce to three or five gallons of water according to strength desired

MEMBER NATIONAL ASSN. INSECTICIDE AND DISINFECTANT MFRS. INC. INC. 1914

P. R. DREYER, INC.

12 E. 12th Street New York

"It's the Odor that Sells the Product"

Exterminators Hold National Meeting

THE second annual convention of the National Association of Exterminators and Fumigators, held at the Statler Hotel, St. Louis, October 1st to 3rd, drew representatives of 120 firms from all parts of the country. The following officers and directors were elected for 1934-35: President, Thomas C. Raley, St. Louis; vice-presidents, B. W. Eldridge, Boston, Martin Meyer, Philadelphia, C. Norman Dold, Chicago, H. O. Abel, Dallas, J. M. Miller, Los Angeles; secretary, William O. Buettner, New York; treasurer, H. K. Steckel, Columbus. The following directors were elected: (three years) Dr. E. D. Wilson, P. C. Cissell, Al Cossetta, Max Levy, F. W. Harper, R. W. Laing, Walter S. McCloud; (two years) Wm. Elliott, F. D. Hubbell, Wm. Martin, J. Howell, M. E. Jorgenson, A. E. Ritt, Edward H. Arnott; (one year) Irvin Josephson, O. Orkin, H. J. Hammond, J. Mandelbaum, W. F. Smith, C. L. Lee, John Greene.

Several changes relating to the duties of the various officers and the qualifications for membership were made in the Constitution. It was voted to hold the 1935 convention at the Hotel Statler in Detroit, at a time to be determined between Oct. 15 and Nov. 15, 1935.

The convention was called to order Monday, Oct. 1 at 10:00 A.M. Addresses of welcome were given by a member of the St. Louis city council and by F. J. Fahrenkamp, president of the St. Louis Society. Nathan K. Concannon, executive secretary of the New York Society and F. D. Hubbell, president of the Baltimore Society, responded to these greetings. Next on the program was the address of the president, William O. Buettner. Following the president's message the secretary's report, the treasurer's report and various committee reports were given.

The convention reconvened in the afternoon with William E. Martin, vice-president of the St. Louis Society, presiding. The meeting opened with a report of the legislative committee given by the chairman, Dr. E. D. Wilson. Dr. Thomas E. Snyder, Senior Entomologist of the U. S. Department of Agriculture, spoke on the subject of Termite Control and brought out the fact that a conservative estimate places the annual termite damage at 40 million dollars. Dr. Snyder believes that this will become more and more a problem for the exterminating industry. Others on the Monday afternoon program were Dr. George H. Chapman, American Cyanamid & Chemical Co., who spoke on the subject of Industrial Fumigations; C. Norman Dold, Rose Exterminating Co., who spoke on Organization and Cooperation; Dr. John G. Kreer, Antimite Co., who gave an illustrated lecture on termites. The remainder of the session was given over to general business.

President William O. Buettner called the Tuesday morning session to order and the first speaker was Dr. G. C. Oderkirk, Assistant Biologist of the U. S. Department of Agriculture. Dr. Oderkirk spoke on the subject of Rat Control from the Bait Angle and gave some interesting data regarding surveys made in connection with the different types of bait. Dr. Oderkirk also appealed for more cooperation between the commercial exterminators and the Biological Survey Bureau. Dr. C. L. Williams, Senior Surgeon of the U. S. Public Health Service, talked regarding Legal Control of Fumigations. Dr. Williams pointed out that although there are relatively few deaths resulting from fumigating work, these deaths are usually given much publicity and as a result the public are demanding control measures. He urged that the association assume the leadership in bringing about proper regulation. W. Scott Johnson, Chief of Sanitary Section, St. Louis Health Department, presented some data serving to point out that in his opinion the police department and not the health department should be in charge of control measures relating to fumigating work.

In the afternoon F. E. Cislak, Director of Organic Research for Reilly Tar & Chemical Corp., presented an interesting technical paper on the source, reproduction, habits and suggested treatment of termites. Dr. Cislak was followed on the program by Major J. I. Connolly, Chicago Board of Health, explaining in detail the Chicago ordinance relating to fumigating work. Following Major Connolly, Arthur Srebren of Murray & Nickell Mfg. Co., gave a talk on Moths and Moth Preventives. Mr. Srebren pointed out that as a rule exterminators have been passing up a large field by paying on small attention to the moth problem. According to the data presented by Mr. Srebren, oil soluble moth proofing compounds are the most practical for general use.

Due to the large amount of unfinished business to be handled at the Wednesday morning session, the speakers scheduled cooperated by cutting their talks

Thomas C. Raley

THOMAS C. RALEY, executive head of Getz Exterminators, Inc., St. Louis, becomes the second president of the National Association of Exterminators and Fumigators, succeeding William O. Buettner of New York. Mr. Raley, one of the founders of the Association and a director, has been a national figure in the exterminating industry for some years. He headed the committee in charge of the successful St. Louis meeting on Oct. 1, 2, 3.

DEPENDABLE REILLY PRODUCTS

For the Soap and Disinfectant Industry

CRESYLIC ACID
CRESOL
CRESOL U.S.P.
XYLENOL
TAR ACID OILS
NAPHTHALENE

Reilly COAL TAR PRODUCTS

12 PLANTS TO SERVE YOU

REILLY

TAR & CHEMICAL CORPORATION

MERCHANTS BANK BUILDING · · · INDIANAPOLIS, IND.

SEATTLE, WASH. • PROVO, UTAH • MINNEAPOLIS, MINN. • CHICAGO, ILL. • GRANITE CITY, ILL. • INDIANAPOLIS, IND. • DOVER, OHIO • FAIRMONT, W. VA. • NEWARK, N. J. • NORFOLK, VA. • CHATTANOOGA, TENN. • MOBILE, ALA.

NOW! *In Color..*
PORCELAIN ENAMEL

GREEN
ROSE
ORCHID

FAWN
WHITE
BLACK

free! For a Limited Time

A New Deal That Brings You Profit

Not only the ultimate in beauty—but the very essence of high, lasting quality are embodied in these fine deodorant Bloc Containers—now offered FREE with each set of 4-40 oz., or 6-25 oz., or 8-16 oz. KAPORATOR BLOCS.

NOTE THESE FEATURES

New Pastel Shades—green, rose, orchid, fawn, white, black—colors to harmonize with lavoratory fixtures and walls. Glossy finish that's easy to keep clean. Positively rust-proof.

A New Idea for Your Trade

This combination of a beautiful container and the fragrant KAPORATOR BLOCS insures quick sales for you and satisfaction for your customers. So take advantage of this unusual FREE DEAL while the offer lasts.

KAPORATORS cost no more than ordinary blocs—yet the aroma lasts longer. Put up under your label if desired.

ORDER NOW
Immediate Delivery

The Reasons For KAPORATOR QUALITY

Blocs are made of paradichloro benzene and a special stabilizing agent that releases the perfume at same rate as the paradichloro benzene vapors. Expelled fragrance remains **uniform for life of bloc.** Clean, firm, crisp and thoroughly efficient in effect. Available in all standard shapes, sizes, colors and fragrances. Packed neatly and securely.

HYSAN
PRODUCTS COMPANY

Manufacturing Chemists

2560 ARMITAGE AVENUE, CHICAGO, ILL.

down to a few main points. These speakers were B. C. Culver, American Cyanamid and Chemical Co., who spoke on Rodent Control with Calcium Cyanide; Frank W. Harper, Termite and Insecticide Laboratories, who spoke on Structural Engineering Aspects of Termite Control; John H. Mueller, Research Laboratories, who spoke on the Evaluation of Insecticidal Products; George L. Hockenyos, Sentinel Insect Control Laboratories, who spoke on Profitable Handling of Small Fumigating Jobs.

Entertainment for those attending included a men's smoker immediately following the Veiled Prophet parade Tuesday night, a sightseeing trip Wednesday afternoon and the annual banquet Wednesday night. N. K. Concannon of New York acted as toastmaster at the banquet. William O. Buettner, retiring president, and Thomas C. Raley, his successor, were the main speakers. For entertainment, there were sixteen acts of a floor show and a dance orchestra. The details of the convention were handled throughout by the local St. Louis Society.

—— ♦ ——

NEW INSECTICIDE SOLVENT

Ultrasene is a new petroleum product of the Atlantic Refining Co., Philadelphia, which is now being introduced to the insecticide industry as a base for fly sprays and liquid insecticides. The product is stated to be free from kerosene odor, possessed of great chemical stability, clear water white, and to evaporate completely leaving no oily residue. Its boiling range, the maker states, is carefully restricted so that maximum killing effect without any unevaporated residue, is assured. The flash point of Ultrasene is 166° F. by the Tagliabue closed cup method which is equivalent to 175° F. by the open cup. The manufacturer in announcing the product laid emphasis on the great stability and retention of its odorless character of the oil when kept in storage as part of a finished insecticide over long periods of time.

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APPOINTS CUBE AGENT FOR U. S.

William J. Dennis who has been spending a few months in this country sailed for Peru on Oct. 15, after completing arrangements with W. Benkert & Co., New York, for the exclusive sale of Cube root and its derivatives in the United States and Canada. The rapidly increasing use of rotenone insecticides in this country has focused interest on Cube which is equally as effective as derris for most purposes, and offers the advantages of greater availability, lower cost and, in general, higher rotenone content, according to Mr. Dennis. He has devoted most of the last ten years to developing the cultivation of high grade Cube root in the upper Amazon valley and controls extensive plantations in that region. He is the holder of U. S. Patent, Re-issue No. 18667, covering the use of Cube root (*Lonchocarpus nicou*) in any form as an insecticide and vermifuge.

FINISH
OXIDIZE OR NICKEL PLATE

GARNET

The Largest Manufacturers of Sanitary Appliances—Since 1899

GARNET "UNIVERSAL"
Automatic - Drip - Machines

One quart capacity, made of heavy metal, neat in design. White Enamel, Nickel or Oxidize finish—complete, ready to install.

NEW FEATURES—Adjustable to front or back drip. Inner tank removable from bottom, for easy filling and cleaning also easy replacing of wicking.

NO RUSTING—Outer chamber does not come in contact with fluid. Inner tank is interchangeable, increases the life of the machine over other makes where bottoms eat and rust through in comparative short time.

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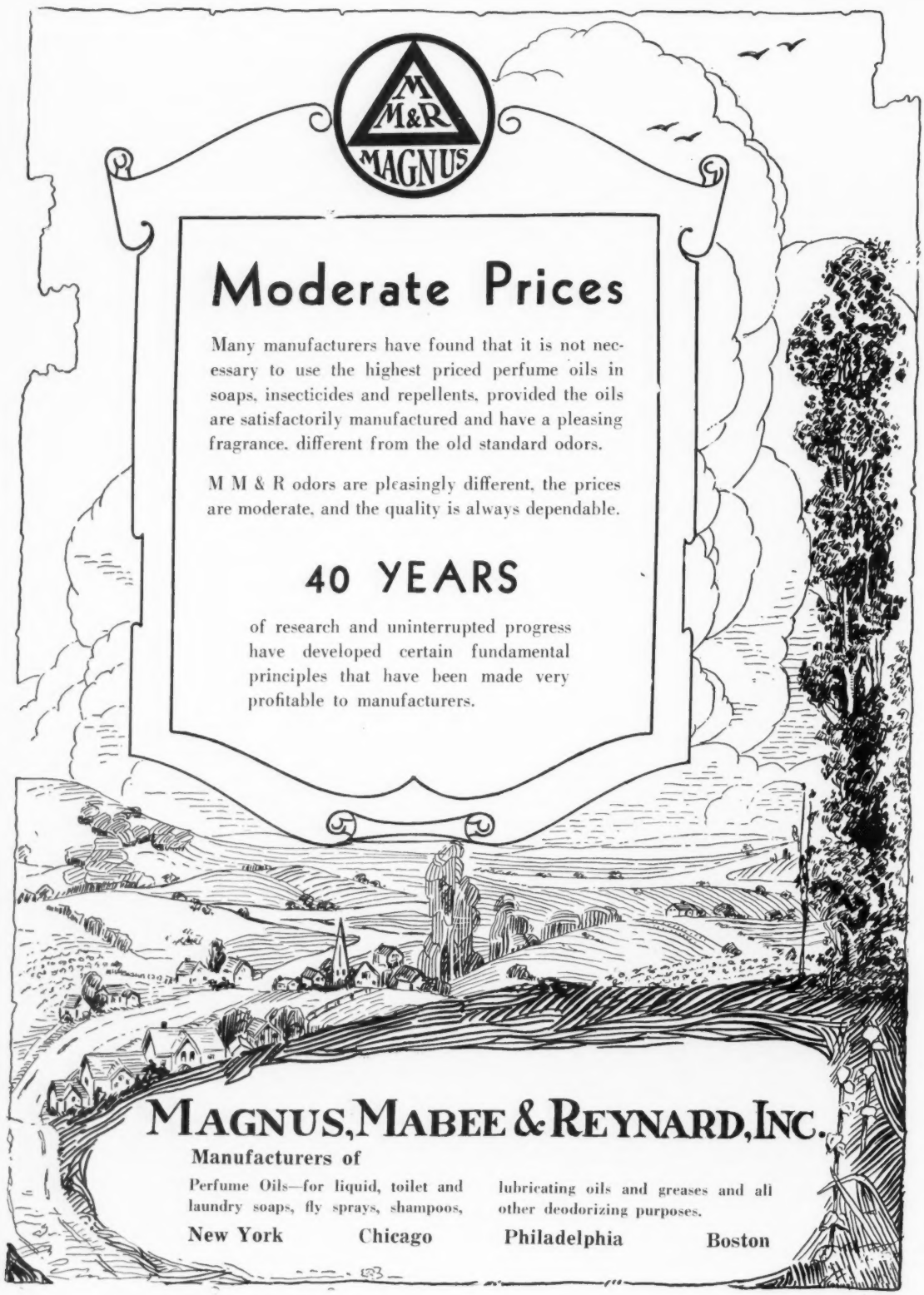
Garnet-Liquid Soap-Dispensers

Low in price, popular from Coast to Coast. Constructed with simplicity and strength. Neat Designs—made for steady and hard usage. Large variety of styles. Send for catalogue.

GARNET CHEMICAL CORP.

911-25 NORTH LUMBER STREET **Dept. K Allentown, Penn.**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M&R
MAGNUS
Moderate Prices
Many manufacturers have found that it is not necessary to use the highest priced perfume oils in soaps, insecticides and repellents, provided the oils are satisfactorily manufactured and have a pleasing fragrance, different from the old standard odors.
M M & R odors are pleasingly different, the prices are moderate, and the quality is always dependable.
40 YEARS
of research and uninterrupted progress have developed certain fundamental principles that have been made very profitable to manufacturers.
MAGNUS, MABEE & REYNARD, INC.
Manufacturers of
Perfume Oils—for liquid, toilet and laundry soaps, fly sprays, shampoos, lubricating oils and greases and all other deodorizing purposes.
New York
Chicago
Philadelphia
Boston

I. & D. MEEING IN N. Y., DEC. 10-11

At the regular quarterly meeting of the Board of Governors of the National Association of Insecticide & Disinfectant Manufacturers, held Sept. 25 at the Hotel New Yorker, New York, the date for the 21st Annual Meeting was selected as December 10 and 11 at the Hotel New Yorker. There will be a regular annual meeting of the Board on Sunday evening, Dec. 9, in advance of the general meeting. The meeting will extend for two days, closing with the annual informal banquet on Tuesday evening which this year will be held at the Downtown Athletic Club, New York. There will be a floor show during dinner, after which the entire group will attend the boxing bouts at the club. An entirely new and novel entertainment program has been planned. J. A. Walsh, of C. B. Dolge Co., Westport, Conn., chairman of the Program Committee, outlined plans for the annual meeting for the Board.

The Board received the resignation of W. J. Andree as a member but deferred action on the election of his successor. S. H. Bell, who was present, also tendered his resignation as a member of the Board, but it was tabled, action being put off until the annual meeting in December. There was a discussion of various state laws having a bearing on the businesses of members of the Association, especially those of Texas, New Jersey and Alabama.

Dr. Robert C. White reported on the status of the code, mentioning the delays in Washington which have prevented the collection of funds to carry on the work of the Code Authority. It was recommended that various changes in the by-laws of the Association be made so as to bring them into closer agreement with NRA requirements and that these changes be voted on at the annual meeting in December. President Peter Dougan announced that 77 firms in the industry had voluntarily contributed ten dollars each toward paying the deficit incurred by the Association in advancing necessary funds to cover the expenses of formulating the Code.

Those present at the Board meeting included President Peter Dougan, Merck & Co.; Secretary John Wright, Zonite Products Corp.; Harry W. Cole, Baird & Mcguire, Inc.; S. H. Bell; Dr. C. H. Peet, Rohm & Haas, Inc.; W. J. Zick, Stanco Inc.; Dr. Robert C. White, Robert C. White Co.; C. P. McCormick, McCormick & Co.; H. W. Hamilton, White Tar Co.

—♦—

Fire in the Cleveland plant of the Barrett Co., tar products, on September 18th, caused damage estimated at $75,000. All the fire companies in the lower part of the city were called to put out the blaze which is believed to have been started by erosion in a pressure line connected with one of the continuous stills. One employe was slightly burned.

—♦—

Browns Insecticide Co., formerly located at 225 East 14th St., New York City, has moved to 415 2nd Avenue.

Federal Distributors Expand Their Markets

For a number of years, Federal Distributors have seen the opportunity to improve their service to their customers and to increase their sales by reaching a big market hitherto untouched.

They were calling on institutions, public buildings and large consumers, selling them soaps, chemicals, cleaning materials and supplies which were used to clean floors and other surfaces. The maintenance finishes were bought from other sources.

THEY GET THE WHOLE JOB NOW

The Federal line completes their service. They get business now in a big volume that formerly went elsewhere. They have become floor experts.

What it has done for others it can do for you. Floor maintenance offers a tremendous field for increasing sales and profits.

Let us tell you how to reach this vast market with Federal Products, backed by our proven sales and merchandising policies.

FEDERAL VARNISH CO.

337 So. Peoria St. Chicago, Ill.

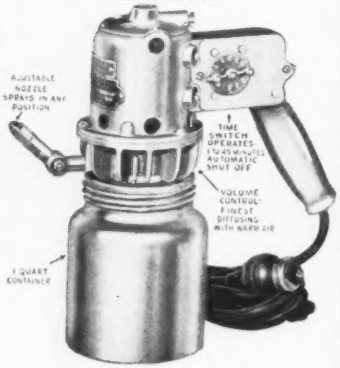
The Answer to Your SPRAYING PROBLEMS

AUTOMATIC — SAFE — TROUBLE FREE
FINEST CONTROLLED ATOMIZATION
WITH THE NEW

TORNADO ELECTRIC SPRAYER

MODEL 54

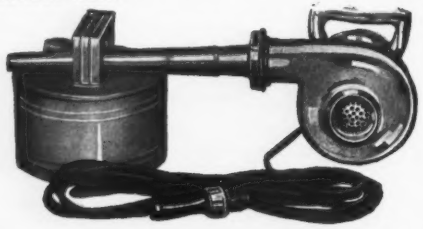
Here is the new sprayer you've been looking for. It features an automatic time switch set at any point from 1 to 45 minutes — sprays desired amount without any attention whatever — automatically shuts off. Can also be used for hand spraying. Adjustable nozzle can be set for spraying in any position. Also exclusive volume control adjustment permits spraying one ounce every two to four minutes with either fine or heavy spray. Don't fail to get the facts on this new type sprayer before buying.


ADJUSTABLE NOZZLE SPRAYS IN ANY POSITION
TIME SWITCH OPERATES 1 TO 45 MINUTES AUTOMATIC SHUT OFF
VOLUME CONTROL FINEST DIFFUSING WITH MAXIMUM AIR
1 QUART CONTAINER

Also Most Complete Line of Electric Sprayers to Enable You to Meet Every Spraying Problem

Model 53 new Compressor Type unit with new adjustable volume control. Will break insecticide into *finest* mist and gas formation mechanically obtainable. Floats throughout spraying area for many minutes—a truly de luxe model! 1/8 H.P. G.E. Universal Motor. 1 quart metal container. 20′ of rubber covered cable.

Model 50 Fan Type unit. A fine insecticide atomizer. Sprays distance of 8′ to 10′. 1/8 H.P. G.E. Universal Motor, 1 pint glass jar. 20′ of rubber covered cable.



Model 6 Fan Type unit. Will break insecticide into a very fine mist. Sprays 18′ to 20′. 1/3 H.P. G.E. Universal Motor. Norma Ball Bearings, 1 gallon metal container. This model is for larger institutions, warehouses, industrials, etc., and is also highly recommended for mothproofing solutions. Write today for complete description and circulars.

BREUER ELECTRIC MFG. CO.
862 Blackhawk Street — Chicago, Ill.

We do not sell insecticides. Our business is manufacturing sprayers.

WHY YOU CAN BE SURE *with* COAL TAR PRODUCTS FROM KOPPERS

1. KOPPERS IS ONE OF THE TWO LARGEST PRODUCERS OF COAL IN THE UNITED STATES
This has given Koppers a thorough knowledge of the coals from which tar products are produced.

2. KOPPERS BUILT OVER 75% OF ALL THE BY-PRODUCT OVENS IN THE UNITED STATES
This has made Koppers more familiar than any other organization with the processes of tar production.

3. KOPPERS IS ONE OF THE THREE LARGEST PRODUCERS OF CRUDE TAR IN THE UNITED STATES
This has kept it in intimate daily contact with the practical side of the production of coal tars and their products.

DEPEND ON KOPPERS FOR COAL TAR PRODUCTS

TAR ACIDS

CRESOL, U. S. P.

PHENOLS

CRESYLIC ACID
98% to 100% STRAW COLOR

TAR ACID OILS

NEUTRAL HYDROCARBON OIL

KOPPERS PRODUCTS COMPANY
KOPPERS BUILDING
PITTSBURGH, PA.

NEW WINDSOR WAX RETAIL PACKAGES

Windsor Wax Co., Hoboken, N. J., is now offering two wax products to the retail trade through grocery and hardware jobbers. One is the company's regular liquid non-polishing floor wax and the other a new item, a white emulsion, non-settling furniture polish. Both products are packaged in new containers, as illustrated elsewhere in this issue, the floor wax being available in pint, quart, half gallon and gallon cans and the furniture polish in small bottles. The company has emphasized that these new packages will only be available to hardware and grocery jobbers, as far as direct sales are concerned, as the institutional trade will be served through sanitary supply houses as in the past. The new furniture polish will be added to the firm's regular line for repackers and sanitary product jobbers which includes waxes and polishes for every purpose.

—♦—

A warning has been issued by the National Association of Insecticide & Disinfectant Manufacturers against a man giving the name of Thornton C. Lyon, representing himself to be a chemist and in the insecticide business, and a member of the Chemists' Club, New York, who has been cashing worthless checks. He might also use another name. If he is encountered, it is suggested that local police be notified.

—♦—

Imports of liquid disinfectant, weed killers, and insecticides into British Malaya during 1933 totaled 74,323 Imperial gallons. Those imported in powdered form totaled 10 long tons. The United Kingdom and the United States furnished most of the liquid products, while those in powdered form originated principally in the United Kingdom, Japan, and Continental Europe.

—♦—

Ludwig Wilson Co., janitor supplies, Chicago, has recently occupied new quarters at 501 South Franklin St.

—♦—

PHENOL COEFFICIENT—WHAT VALUE?

(*From Page 93*)

which tends to exaggerate the quantitative expression of the true effect of the tar oil disinfectants upon this micro-organism. But at any rate these few examples will be sufficient to explain the conclusion drawn by Brewer and Ruehle from their figures, viz., that "any attempt to estimate the efficiency of a disinfectant against other species of pathogenic bacteria from the B. typhosus phenol coefficient is unreliable and unsafe", a conclusion which is in complete disagreement with the position taken by Mr. Baird. The original paper should be consulted for additional evidence in support of this generalization.

IT might be argued that Mr. Baird was justified in making his assertions because he might have had the strictly "disinfectant" uses in mind, without desiring his remarks to be applied to the "antiseptic" uses. As is known, it is customary to base the dilutions recom-

Sherwood's

SPRAYSENE

takes the place of kerosene in percolating pyrethrum flowers or diluting pyrethrum concentrates. It has

NO KEROSENE ODOR

Conforms with the National Association of Insecticide & Disinfectant Manufacturers' specifications for Peet-Grady test distillate.

THE TEST TELLS:

A. P. I. Gravity at 60° F.	50.0
Specific Gravity at 60° F.	0.7796
Saybolt Viscosity at 100° F.	33
Saybolt Color	30 plus
Odor	Free from Kerosene
Initial Boiling Point	380° F.
End Point	510° F.
Flash Point	175° F.
Fire Test	180° F.
Copper Test	Negative
Acid Test	Negative

Refined by

SHERWOOD

PETROLEUM COMPANY, INC.

Brooklyn, N. Y., Warren, Pa., Chicago, Ill.

Branches or agents in principal cities

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Also manufacturers of

DI-BUG

PYRETHRUM EXTRACTS AND POWDER

DOBBINS *high pressure* CHEMICAL SPRAYERS

No. 35—3 qt. Capacity
No. 30—1½ gal. Capacity

We also manufacture other Sprayers, Sanitary Chemical Closets, Mop Wringers, and other metal specialties.

Controlled Atomization!

IT DOESN'T PAY TO TRUST TO LUCK.

If your product requires a sprayer for dispensing or application, the selection of the sprayer is of utmost importance to you.

Your success or failure in business depends largely on the effectiveness of your product.

PROPER ATOMIZATION is most essential to the effectiveness of Insecticides, Disinfectants, and Germicides.

CONTROLLED ATOMIZATION, through air regulator, is an exclusive patented feature of Dobbins high pressure Chemical Sprayers.

THE NOZZLE has a wide range of adjustment, from a forceful, penetrating spray, to a medium mist, or a fine floating fog, with in between variations by a slight turn of the air control valve.

DOBBINS Sprayers will solve your spray problems.

No. 10—1½ gal. Capacity. A New Chemical Sprayer with Air Regulator and Volume Control

DOBBINS MANUFACTURING COMPANY

NORTH ST. PAUL
MINNESOTA

PORTLAND
OREGON

Write for complete catalog and price list.

for *34* *years*

INSECTICIDES

Makers of

Coal Tar Disinfectants
Stock Dips
Pine Oil Disinfectants
Insecticides
Polishes
Cleansers
Liquid Soaps
Spray Products
Roofing Cements

for the Wholesale and Jobbing Trades Only

Prepare for the fall and winter business on household insecticides for use against bed bugs, roaches, silverfish, etc. Here are four products of unusual interest to the jobber and distributor at this season.

LIQUID INSECTICIDE

Sure death to bed bugs and roaches. Will not stain. Non-explosive.

PHENOL INSECTICIDE

Low cost. For use in rooming houses, jails, etc. Powerful.

PERFUMED INSECTICIDE

Especially for hotels, apartments, etc. Odor pleasant. Results sure.

ROACH POWDER

Effective 100% against ants, roaches etc. Best obtainable.

Also best quality Fly Spray for immediate needs.

Send for samples, prices, etc., and a copy of our new folder containing full information.

CHEMICAL SUPPLY COMPANY

2450 Canal Road **Cleveland, O.**

Established 1898

mended for the former uses upon tests with B. typhosus, while the latter are determined from the results obtained with Staph. aureus as test-organism. However, this argument cannot be admitted for two reasons. Firstly, Mr. Baird's article contains specific reference to the treatment of wounds, sores, etc., indicating that the author must have had the "antiseptic" uses in mind. Secondly, it is a fallacy to assume that even where the purely "disinfectant" uses are concerned, the efficacy of a preparation against micro-organisms other than those represented by B. typhosus, is of minor importance, just because this germ happens to be used officially in determining the phenol coefficients and in arriving at the dilutions in which the products are applied in practical disinfection. Moreover, recent experiments have demonstrated conclusively that several micro-organisms of pathogenic and epidemiologic significance whose destruction should be aimed at in disinfecting procedure, do not compare with B. typhosus in regard to their resistance to disinfectants; therefore, the results obtained with this micro-organism cannot possibly furnish an accurate measure of the general disinfectant ability of a given preparation.

Thus it would follow that dilutions for use, prepared solely on the basis of their effect upon B. typhosus may or may not produce the germicidal effect expected of them. It would seem more proper, therefore, to discuss the question of economy of using different disinfectants, in relation to their *actual* germicidal potency, under the conditions of those uses in which they are effective in practice, rather than (as does Mr. Baird) in relation to their capacity of dilution, derived from their observed action upon B. typhosus; because depending upon the contemplated application, the effect upon B. typhosus may or may not have any bearing upon the concentration required for such application. Considerable discrepancies in the economic aspects are likely to be found especially in those cases where the quantitative measure of germicidal potency against B. typhosus belongs to a higher order of magnitude as compared with that against Staph. aureus; and such cases are by no means rare, as shown before.

The above remarks should not be construed as implying a criticism directed against any particular type of coal tar disinfectant. It is readily conceded that there exist preparations both of the tar-oil and of the cresylic type, the germicidal effect of which is well balanced, so as to eliminate completely the question of "quasi-specificity", i.e., of a selective potency with regard to *one* group of micro-organisms to the partial or total exclusion of others. On the other hand, there is sufficient evidence available showing that this same question of limited or one-sided efficacy must be raised in the case of certain other products sold as disinfectants or germicides.

This discussion covers the purely bacteriological aspects of the case, which are, of course, of primary importance. It should be added that there are other

Barrett Standard

CHEMICALS

Barrett Standard Chemicals are produced to strict specifications under rigid scientific control. The result is uniformly dependable, high-quality products.

A competent Barrett Technical Staff will gladly assist you in production problems involving the use of Barrett Standard Chemicals. Phone, wire or write.

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BARRETT STANDARD CHEMICALS

PHENOL (Natural)
U. S. P. 39.5° M. Pt. and 40° M. Pt.
Technical 39° M. Pt.
Technical 82-84% and 90-92%

CRESOL
U. S. P., Meta Para, Ortho, Special Fractions.

CRESYLIC ACID
99% Straw Color and 95% Dark.

XYLENOLS

TAR ACID OILS

NAPHTHALENE
Crude, Refined Chipped, Flake and Ball.

PYRIDINE
Refined, Denaturing and Commercial.

HYDROCARBON OIL . . . BENZOL . . .
TOLUOL . . . XYLOL . . . SOLVENT
NAPHTHA . . . HI-FLASH NAPHTHA

TRADE B MARK

THE BARRETT COMPANY
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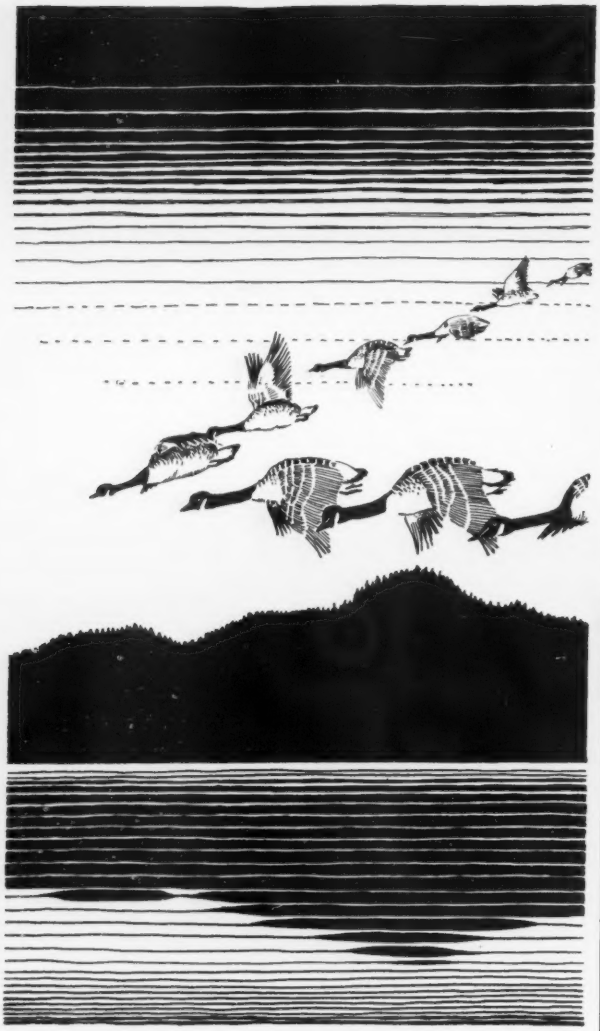


UNIFORMITY
with unvarying action

- PYRETHROL 20 is a superior concentrate standardized to contain not less than 2.15 grams of pyrethrins per 100 c.c. Made with a petroleum oil refined to complete freedom from kerosene odor.
- PYRETHRUM-ROTENONE CONCENTRATE contains pyrethrins and rotenone in the proper ratio, where rotenone is in solution and will remain in solution when diluted.
- THE FINEST PYRETHRUM POWDER available with a known high pyrethrin content, milled under temperature controlled conditions.
- DERRIS EXTRACT containing 5.0 grams of rotenone per 100 c.c. plus the other toxic derivatives of derris root.
- DERRIS RESINATE containing 25% rotenone and 75% active resins.
- ROTENONE CRYSTALS as solvate—71% rotenone.
- DERRIS POWDER STANDARDIZED—containing 4% rotenone.
- ROTENONE TECHNICAL and C. P.

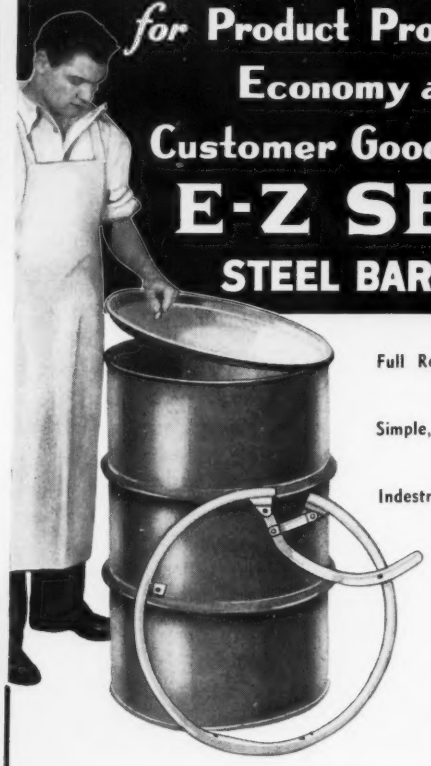
McCORMICK and COMPANY, INC., BALTIMORE, MD.

Standardized Pyrethrum and Derris Products

PYRETHROL 20

for Product Protection, Economy *and* Customer Good-Will—

E-Z SEAL
STEEL BARRELS



Full Removable Head

●

Simple, Sealing Rings

●

Indestructible Covers

●

Air and Liquid-tight

●

High Second-Hand Value ($1 to $1.25)

Many famous brands of liquid, semi-solid, crystal, and powder products are now regularly shipped in *E-Z SEAL Barrels* to insure *product safety, customer preference,* and *economies in packing and shipping.* Simple, easy-to-operate sealing rings securely fasten the cover in place, making a positive, leak-proof closure.

Get the added prestige for YOUR Product that E-Z SEAL Barrels give!

GET ALL THE FACTS ON THESE PRACTICAL MODERN BARRELS — NO OBLIGATION TO YOU

We manufacture a complete line of modern steel Barrels, Drums, and Pails 1 to 65 gallon sizes.

WILSON & BENNETT MFG. CO.

GENERAL OFFICES AND FACTORY—6528 S. Menard Ave., Chicago. Phone—Republic 0200

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Cortland 7-0231

SOUTHERN OFFICE & FACTORY
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Phone—Galvez 2171

Three Modern Factories
Sales Offices and Warehouses in Principal Cities

factors involved, a discussion of which will be dispensed with, however, for the sake of brevity.

Summary

IN spite of Mr. Baird's opinion to the contrary, there is no experimental foundation for the implied claim that the B. typhosus phenol coefficient (which must appear on the package of a disinfectant) is the sole criterion of its value. Nor is it justified to postulate unqualifiedly that "high coefficient" disinfectants should be used in the interest of economy. On the contrary, it is shown that the sole consideration of the phenol coefficient is inadvisable because, depending upon the contemplated application of the product, it may suggest the use of solutions of questionable efficacy, thus rendering uncertain the destruction of germs (which is the first objective of disinfection). It is held that the intelligent selection of a germicide should not be based one-sidedly upon the B. typhosus phenol coefficient alone, but that it should involve a serious consideration of its antibacterial efficacy against important pathogenic micro-organisms other than B. typhosus, with particular attention to the purpose for which the product is intended, and to the conditions under which it is to be used.

EVALUATING LIQUID INSECTICIDES

(*From Page* 91)

CARE had to be used in selecting a refrigerator for this work. With ordinary temperatures the small regular electrical units answered the purpose but during the very hot months of the summer, it was impossible to keep the temperature down low enough unless a special unit was used. It was found necessary to buy a special oversized laboratory unit and place it in a regular size cabinet. With such a unit the door of the box could be opened every five to ten minutes as needed to put in new cages and remove chilled flies without raising the temperature seriously. It would seem more desirable to have one with a small door rather than one large door and it might be entirely possible to use a regular refrigerator unit if a box could be obtained with only one small door to open. In case the laboratory was already equipped with a standard box, the temperature could be more readily kept uniform by fitting a piece of celotex or other insulating material just inside the front of the box, only leaving an opening large enough to put in and take out chilled flies and marble blocks. A short trial will soon show whether or not the box is satisfactory.

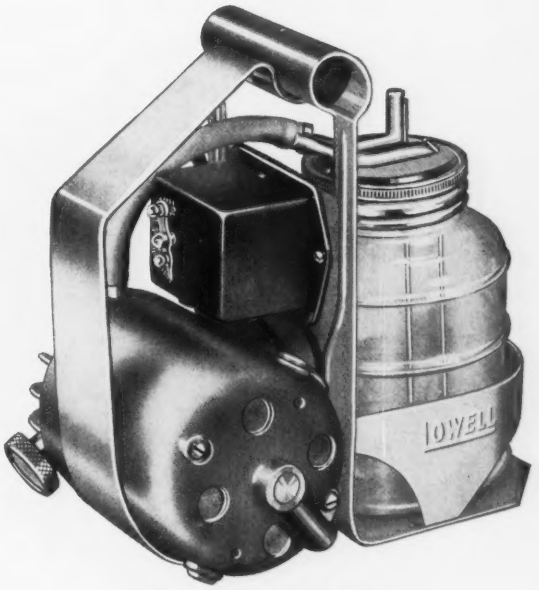
Water Emulsions

TIME has not allowed us to carry on a great many tests with water emulsions but we have run a few tests of this type and the indications to date show that the method may be of considerable value for this purpose. In this case the dilutions were, of course, made with water, and the concentration and dosages were determined by running preliminary tests with various strengths. In the case of white oils and other such materials, low in toxicity, the liquid may be applied un-

LOWELL
ELECTRIC INSECTICIDE
VAPORIZER

Plug into Light Socket — Turn on the Power — It Is Instantly Ready for Use. Nothing to Heat Up — and the Fine Dry Spray Instantly Rises in a Cloud of Death to Insects.

Cost of Operation approximately Half that of Steam Outfits.



No. 300 Electric Vaporizer

● **The New, Improved** combination spray head permits the use of either an angle or parallel spray by merely changing the air supply tube to position desired. Portability made easy by carrying handle.

The addition of the convenient pistol grip type handle allows the vaporized contents to be directed into otherwise inaccessible places such as under sinks, into closets and along the mould boards.

Time Switch can be set to any period of time from one to thirty minutes, according to size of room to be treated, and automatically turns off motor at end of period.

Write for Full Particulars to

LOWELL MANUFACTURING COMPANY

Lowell, Michigan, U.S.A.

BUILD BUSINESS UNDER YOUR LABEL

WE FURNISH THE LABELS WITH YOUR NAME IMPRINTED AT NO EXTRA COST

LIQUID SOAP BASE
Contains glycerine to give your finished product a smooth soothing effect to the skin.

LIQUID TOILET SOAP
Contains glycerine and gives a smooth soothing effect to the skin.

METAL POLISH
No harsh odor. Polishes easily and quickly. Pink color. Non-inflammable and non-settling.

PINE DISINFECTANT
Give a milk white emulsion in water. Has an unusual pleasant pine odor.

COAL TAR DISINFECTANT
Gives a milk white emulsion in water. Carbolic odor.

PINE FLOOR CLEANSER
A liquid floor cleanser having a fragrant pine odor. For cleaning glossy surfaces and linoleum, rubber, tile, etc.

Samples and prices upon request. Check items you are interested in and mail to

NEW YORK SOAP CORPORATION

294 PEARL ST., NEW YORK, N. Y.

OTHER QUALITY PRODUCTS

PINE DEODORANT CLEANSER
LIQUID SHAMPOO
COAL TAR DEODORANT CLEANSER
SHAMPOO BASE
OIL SOAP
SILVER POLISH

TESTS BEST
FOR
KILL
COLOR
ODOR
SOLUBILITY

AN-FO BRAND

No. 20
PYRETHRUM
EXTRACT
ISOLATION
PROCESS

AN-FO MFG. COMPANY, OAKLAND, CALIF.

KOPPERS WHITE TAR
MOTH PROOFING PRODUCTS

Deodorizing
AND MOTHPROOFING
Blocks
PLAIN AND PERFUMED
MADE WITH NAPHTHALENE OR PARA BASE

NAPHTHALENE FLAKES, CHIPS, etc.
DISINFECTANTS EMULSION AND SOLUBLE TYPES
FLY SPRAYS HOUSEHOLD SPRAYS CATTLE SPRAYS

MEMBER
NATIONAL INSECTICIDE AND DISINFECTANT MFRS. ASSN. INC. 1914 INC.

THE WHITE TAR COMPANY
OF NEW JERSEY, INC.
PHONE KEARNY 2-3600
BELLEVILLE PIKE KEARNY, N. J.

diluted. More work will have to be carried on with this type of solution and with other insects usually found in the field on plant life before definite data can be presented.

This method is not offered as a substitute or replacement for any testing method now in use. It is simply presented as an additional method for laboratory use for the preliminary check-up of intrinsic toxicity of a sample before spending time running it on a more elaborate scale. It also requires only very minute quantities of test materials and is especially suitable for preliminary results on research samples where large quantities are often not available.

It might be well to explain the interpretation of the three readings—"active," "moribund" and "dead." *Active* insects are those able to fly or crawl out of the dish when it is opened. *Moribund* are those insects moving about with difficulty, or on their backs but still able to move legs, antennae or wings. *Dead* are those insects which show no movement whatever.

The accompanying photograph shows the equipment necessary to carry on this type of testing work.

Summary

A SHORT outline of the method herein described as now in use is as follows: Approximately 60 to 70 house flies of known age are chilled for a period of five minutes in an electric refrigerator set at 30° —F. These are then removed to a cold marble block where they are separated for uniformity of size and are all turned on their backs. 0.75 mm. of a mixture of nine parts of absolute ethyl alcohol and 1 part by volume of the insecticide to be tested is measured out in a finely drawn capillary tube and placed on the center of the ventral surface of the thorax of each fly while it is still inactive. These treated flies are then transferred to small glass dishes with about twenty-five flies in each dish. Food and water are added and the dishes, after covering with screen wire to prevent the flies from escaping when they warm up and become active, are set aside for a twenty-four hour observation. A total of 300 or 600 flies are used per sample or 600 to 1200 flies for a complete test of a standard and an unknown sample, depending on the degree of accuracy desired.

Some of the advantages of this method are: Accuracy because of controlled volume of liquid per fly; careful separation of flies for size and age; small amount and low cost of equipment; fewer insects necessary per test; adaptability of the method to almost any insect and speed with which it can be completed.

Some of the disadvantages of the method are: It measures only the intrinsic toxicity of a sample and does not indicate the speed of paralysis; it is not comparable to field conditions for flies, mosquitoes and other flying insects; it requires a considerable degree of skill, both in mixing the solutions and the application to the fly, especially in the measurement of such minute dosages in capillary pipettes.

It's

NEW!

ATLANTIC ULTRASENE

an improved fly-spray carrier with no kerosene odor

Atlantic Ultrasene, developed by the research laboratories of The Atlantic Refining Company, is a highly refined petroleum product for use in insecticide manufacture. It has no kerosene odor, which makes it particularly acceptable in fly-sprays for hotels, restaurants, dairies, bakeries and domestic use. . . . Atlantic Ultrasene leaves no oily residue. . . . Because of its higher flash point, Ultrasene is safer. In color, Ultrasene is brilliant water white. . . . And it is economical!

Test Atlantic Ultrasene. Experimental samples and additional information will be gladly furnished upon request. The Atlantic Refining Company, Specialty Sales Department, 260 South Broad Street, Philadelphia, Pa.

ATLANTIC ULTRASENE

Good USED MACHINERY *for* SOAP MANUFACTURERS

H-A 1500, 3000, 4000, 5000 lbs. capacity. Steam Jacketed Crutchers.
Dopp Steam Jacketed Crutchers, 1000, 1200, 1500 lbs. and 800 gals. capacity.
Ralston Automatic Soap Presses.
Scouring Soap Presses.
2, 3, 4, 5 and 6 roll Granite Toilet Soap Mill.
H-A 4 and 5 roll Steel Mills.
H-A Automatic and Hand-Powered slabbers.
Proctor & Schwartz Bar Soap Dryers.
Blanchard No. 10-A and No. 14 Soap Powder Mills.
J. H. Day Jaw Soap Crusher.
H-A 6, 8, and 10 inch Single Screw Plodders.
Allbright-Nell 10 inch Plodders.
Steel Soap frames, all sizes.
Steam Jacketed Soap Remelters.
Automatic Soap Wrapping Machines.
Glycerin Evaporators, Pumps.
Proctor & Schwartz large roll Soap Chip Dryers complete.
Doll Steam Jacketed Soap Crutchers, 1000, 2000 and 1350 lbs. capacity.
Ralston and H-A Automatic Cutting Tables.
Soap Dies for Foot and Automatic Presses.
Broughton Soap Powder Mixers.
Williams Crutcher and Pulverizer.

Good USED MACHINERY *for* Sanitary Product Manufacturers

Empire State, Dopp & Crosby Para Presses.

Filling and Weighting Machines for Flakes, Powders, etc.

Sperry Cast Iron Square Filter Presses, 10, 12, 18, 24, 30 and 36 inch.

Perrin 18 inch Filter Press with Jacketed Plates.

Gedge-Gray Mixers, 25 to 6000 lbs. capacity, with and without Sifter Tops.

Day Grinding and Sifting Machinery.

Schultz-O'Neill Mills.

Day Pony Mixers.

Gardiner Sifter and Mixer.

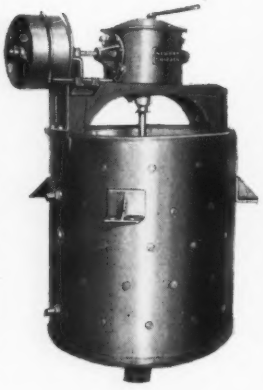
Day Talcum Powder Mixers.

All types and sizes—Tanks and Kettles.

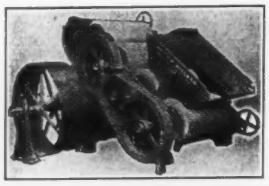
National Filling and Weighing Machines.

New SOAP CRUTCHERS

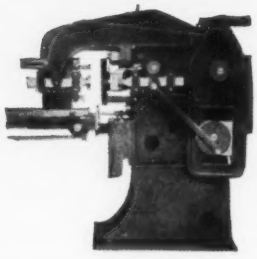
This Newman brand new, all steel steam jacketed soap crutcher. Will crutch any kind of soap. We also build another crutcher especially adapted for laundry soap in addition to other new soap machinery such as frames, cutting tables, etc. Send for complete list.



Used *Specials!*



H-A SOAP MILL
This 4-roll granite toilet soap mill is in A-1 shape. Latest and largest size rolls.



4 JONES AUTOMATIC
combination laundry and toilet soap presses. All complete and in perfect condition.

All used equipment rebuilt in our own shops and guaranteed first class condition.

Send us a list your surplus equipment—we buy separate units or complete plants.

NEWMAN TALLOW & SOAP MACHINERY COMPANY 1051 W. 35th St. CHICAGO

Our Forty Years Soap Experience Can Help Solve Your Problems

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Classified Advertising—All classified advertisements will be charged for at the rate of ten cents per word, $2.00 minimum, except those of individuals seeking employment where the rate is five cents per word, $1.00 minimum. Address all replies to Classified Advertisements with Box Number, care of *Soap*, 136 Liberty St., New York.

Note: All advertisements must be in publisher's hands by the first of the month for that month's issue.

Positions Wanted

Technical Chemist—specialist in all kinds of soaps, cosmetics, perfumes, cottonseed and olive oil, shoe polishes, etc., seeks executive post in Latin America. Perfect Spanish, 7 years experience Germany,—7 years South America. Now located in Latin America. Address Box No. 440, care *Soap*.

Chemist, Ph.D.—20 years experience in soaps, oils, fats, cosmetics, perfume materials, with leading firms, desires position with progressive concern. Excellent references as to ability and character. Address Box No. 441, care *Soap*.

Insecticides—plant superintendent and chemist who has had twenty years' experience in manufacturing insecticides and ten years' experience with biological and chemical control of leading fly spray manufacturer, seeks new connection. Highest references. Address Box No. 443, care *Soap*.

Soapmaker, perfumer, superintendent — laundry, toilet, soda, potash soaps, all processes; toilet preparations. Install plants — long experience. Address Box No. 444, care *Soap*.

Soapmaker and Chemist—Thoroughly familiar with the manufacture of laundry, textile and toilet soaps, soap powders, etc., and having ample experience in oil and fat refining, glycerine recovery, analytical work, seeks permanent connection with progressive concern. Address Box No. 445, care *Soap*.

Plant Superintendent—Chemical Engineer has had wide experience in the manufacture and production of boiled and cold made soaps on large scale. Foreign experience. Address Box No. 435, care *Soap*.

Sales Director—experienced in crew management, financial direction and executive positions, desires new connection; preferably with disinfectant company in metropolitan territory. Address Box No. 433, care *Soap*.

SOAP MACHINERY

Every item shipped from our shops at Newark, N. J., is thoroughly overhauled and rebuilt before shipment.

SPECIALS

1—Soap Chip Dryer, 1200 lb.
2—Dopp 650 gal. Steam Jacketed Kettles.
1—Dopp 1200 lb. Steam Jacketed Crutcher.
1—Hershey 1000 lb. Horizontal Jacketed Crutcher.
1—1000 lb. All Steel Soap Powder Mixer.
2—Holmes & Blanchard 24" and 36" 4 cage Disintegrators, for grinding soap powder—no screens, no plugging.

25—Soap Frames, 60"x45½"x14", with trucks.
6—Plodders, Houchin, Rutschman, 4", 4½" double screw, 6", 8", 10".
14—Filter Presses, 42"x42" to 12"x12".
8—Granite Mills, 3 and 4 roll, 12", 18" and 24".
15—Horizontal Mixers, Jacketed and Plain, 15 gal. to 1000 gal.

MISCELLANEOUS—Kettles, Mixers, Pony Mixers, Powder Fillers, Tube Fillers, Labelers, Soap Presses, Soap Wrappers, Tanks, Boilers, Pumps, etc.

Send for Latest Bulletin.

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PRODUCTS COMPANY, INC.

15-21 Park Row, N. Y. C. BArclay 7—0600

We buy your idle Machinery—Single items or entire plants.

WARREN SOAP

Manufacturers of Specialty Soaps
Since 1868

Potash Oil Soaps
Emulsifying Agents
Solvent Soaps
Cleaning Compounds
Private Formulas
Industrial Soaps

Automobile Soaps
Liquid & Paste
Liquid Soaps
Soap Powders
Forresters' Soaps
To increase the spread and adherence of Insecticides

The Warren Soap Mfg. Co.
Incorporated
Kendall Square Bldg., Cambridge, Mass.

Vioflor

A CHEMICALLY SOUND, PERMANENT DEODORIZER

THIS product is a great help to manufacturers of insecticides, naphthas, waxes, polishes, and Paradichlorbenzene blocks.

It saves you 40% to 70% of your perfuming cost *without changing the odor effect you now have in your product.*

It takes only a few minutes to demonstrate this.

On every thousand dollars you now pay out for perfuming ingredients why not save $400.00 to $700.00?

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CREPIN & DOUMIN, Ltd., London, England

Sold in the United States and Canada by

JOHN POWELL & CO., Inc.
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Germicidal Detergents

Manufactured under the patent of
A. R. Cade, Ph.D. and H. O. Halverson, Ph.D.

These detergents are cleaning powders which disinfect, kill germs, remove odors and sterilize, all in the course of the cleaning operation. We control exclusive manufacturing rights under Patent No. 1901434. We can supply these new germicidal detergents under your own label.

KEMIKO MFG. CO.
185-193 Murray St. Newark, N. J.

CLEANING POWDERS of all kinds

Special formulas developed. This type of merchandise will pay you big profits.

We Manufacture

For The Trade ONLY

Liquid Soap Base
Auto Soaps
Potash Oil Soap
Shampoo
U.S.P. Cresol Compound
Coal Tar Disinfectants
Liquid Soap
Pine Oil Soap
U.S.P. Green Soap
Shampoo Base
Pine Oil Disinfectants
Insecticides

Ask for samples of these specialty bulk products

HARLEY SOAP CO.
2852 E. Pacific St. Philadelphia

Young Man, 30, possessing splendid soap background,—selling and sales promotion,—desires position with national manufacturer handling package products. Address Box No. 437, care *Soap.*

Soapmaker—26 years' experience laundry and toilet soaps. Capable of handling any kettle department. Address Box No. 447, care *Soap.*

Salesman—Man with number of years experience and many contacts among wholesale grocery, drug and chain stores in New York and nearby territory, desires to represent out-of-town manufacturer in this territory on cleansers, soap powders, toilet and laundry soaps. Address Box No. 426, care *Soap.*

POSITIONS OPEN

Salesman Wanted—by about October 15th. Must be experienced and successful in Soap line and kindred chemicals as Soap Powder, Detergents, etc. Travel out of New Orleans for old established nationally known Chemical Corporation with plants and branch offices throughout the United States. Territory open Louisiana, Texas, Oklahoma, Arkansas and Mississippi. Position primarily for contacting with Jobbers and Distributors. Apply, stating age, experience, references, past connections and salary expected care of P. O. Box No. 332, Marrero, Louisiana.

Wanted—Alert young man to sell a well-known line of disinfectants, liquid soaps, deodorizing cakes, shampoo bases, etc. Address Box No. 439, care *Soap.*

Eastern manufacturer desires industrial chemist thoroughly experienced in manufacturing soaps, disinfectants, polishes, waxes. State experience, age, salary expected. Address Box No. 414, care *Soap.*

Exclusive territory open in all large cities of this country to men of ability on straight commission basis. Product is a carpet rug and upholstery cleaning powder. Address Guaranty Washing Co., 220—5th Ave., New York City.

Wanted—Established sales agent in Mexico desires to represent American manufacturer on commission basis. Covers Mexico and other parts of Central America. Knows the buyers of chemicals, soap raw materials, insecticide materials, perfume products, etc. References furnished. Correspondence in English or Spanish. Address Box No. 446 care *Soap.*

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A NEW UTILITY CAPPER
THAT TAKES
ALL SHAPES • ALL STYLES
ALL SIZES UP TO 54 mm.
EACH CAP DRIVEN UNIFORMLY TIGHT
• • LESS BREAKAGE
• • NO LEAKAGE
BIG UTILITY AT small COST
The only really flexible capper on the market. Fastest of all (90 caps per minute). Write for descriptive literature and details of liberal trial offer. Haskins equipment must sell itself in your plant!
HASKINS CAPPER
R. G. HASKINS COMPANY
4642 West Fulton Street • Chicago

for your paste products
A REMOVABLE HEAD DRUM

A Trageser removable head drum is the ideal container for any of your bulk paste products—auto soaps, soft soap bases, polishes, textile specialties, fats, greases, etc. The head comes off quickly and makes the container easy to handle.

Trageser drums are built to last. Send for new low prices on 30, 55 and 110 gallon sizes.

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Grand Avenue **Maspeth, L. I., N. Y.**
PUlaski 5—7700

PALMER SOAP DISPENSERS

The Palmer SUPER SERVER Dispenser (right) is priced very low, but has no equal in value. Metal parts are non-corrosive, stainless, chrome alloy. One piece bracket in beautiful satin chrome-like finish. Valve parts easily removed for cleaning or replacement. Crystal glass decagon bowl (opal glass on special order)—decagon black bakelite cap. Large 1-inch opening makes filling easy—no need for removing or inverting bowl. The lowest priced push-in dispenser—yet neat, compact, durable.

The Palmer "D.C." Dispenser (dependable construction), shown at the left, is the lowest priced dispenser offered. Has simple, positive spring-controlled valve. All metal parts chrome nickel plated. Fill through large 1-inch top opening without removing or inverting bowl. Crystal glass decagon bowl (opal glass on special order)—with decagon black bakelite cap.

Palmer PRODUCTS INC
WAUKESHA, WIS.
Adjacent to Milwaukee

NRA WE DO OUR PART

Custom Milling of DERRIS

IN response to numerous requests, we have decided to place our experience and part of our milling equipment at the disposal of importers and others who wish to have Derris and other Rotenone bearing roots expertly milled at reasonable cost.

Our service includes transporting the raw material from the steamship pier, reducing it to an air-floated powder, barreling it and delivering it to the carrier designated by you. Every lot is carefully analyzed after milling by the Jones' Method to determine its Rotenone content as well as the total extractives.

We are also equipped to mill and/or otherwise process a wide variety of botanicals, crude drugs, gums, etc., under strict laboratory control. We solicit your inquiries.

CYRUS WARD & COMPANY, Inc.
Custom Milling Division
305-309 EAST 47th STREET
NEW YORK CITY

F. & S.

Quality Colors
for
TOILET SOAPS
LIQUID SOAPS
TOILET PREPARATIONS

Long experience enables us to produce colors for all types of soaps.

If you have a shade you want matched send us a sample. We have complete facilities for matching.

Liquid soap colors a specialty—send for samples of F. & S. greens and ambers.

FEZANDIE & SPERRLE, Inc.
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PYLA-ODORS

COLOR AND PERFUME
IN A SINGLE OPERATION

BATH SALTS
LIQUID SOAPS
PARA BLOCKS
NAPHTHALENE

FAST COLORS
LASTING ODORS
MODERATE PRICES

▼ ▼

PYLAM PRODUCTS CO., Inc.
Mfg. Chemists, Importers, Exporters
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CABLE ADDRESS PYLAMCO

Miscellaneous

Long established manufacturer of chemical specialties with extensive plant and laboratory facilities, will purchase formulae, or manufacture on royalty basis, new chemical specialties that are original or not highly competitive. Brief description of item and possibilities must be given in first letter. Address Box No. 417, care *Soap*.

Machinery Wanted—Crude glycerine evaporator in good condition at an attractive price. Address Box No. 413, care *Soap*.

For Sale—3 Houchin-Aiken Jumbo Plodders. Excellent condition. Bargain Price. Address Box No. 434, care *Soap*.

Formula—soap specialty product for sale or on royalty basis. Would like to contact manufacturer. Address Box No. 442, care *Soap*.

Cube Roots for large users. Direct importation carrying right to process under my patents. Address W. J. Dennis, Des Moines, Ia.

NEW AND REBUILT SOAP MACHINERY

We offer to the trade our NEW IMPROVED 600 and 1,200 lb. FRAMES, SLABBERS, CUTTING TABLES, FOOT PRESSES, etc. Send for details.

1—Automatic Power Cutting Table
2—Broughton Mixers, jacketed.
1—10A Blanchard Mill
3—Soap Presses, Foot and Power
6—Filter Presses, sizes 6″ to 36″
6—Granite Stone Mills, 2, 3, and 4 rolls
1—Proctor Soap Chip Dryer, complete
1—Automatic Power Soap Press
4—Steel, 3 and 5-roll Mills
1—Jacketed Vertical Crutcher
2—1,500 lb. Horizontal Crutchers
20—1,200 lb. Frames
1—Houchin Chipper, Belt Drive
6—Dry Powder Mixers, 50 to 2,000 lbs.

Cutting Tables, Slabbers, Kettles, Pumps, Tanks, Filter Presses, Wrapping Machines, Tube Fillers, Closers, Crimpers, Dry Powder Mixers, Pulverizers, Grinders, Amalgamators, Mixers, etc.

Send for Complete List (Bulletin No. 15)

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FAST GREEN FOR SOAP
FAST TO SOAP BY ANY PROCESS

Boiled
Half Boiled
Cold
Transparent or
Liquid

Proved for thirty years

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International Merchants
Essential Oils—Waxes—Talc—Clay—Colors—Zinc Oxide, etc.
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SOAP DIES and STAMPS

—for—
TOILET SOAPS
LAUNDRY SOAPS
BATH TABLETS
STAMPING

For Foot and Power Presses

Manufacture Backed by 35 Years' Experience

ANTHONY J. FRIES

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Where to buy

RAW MATERIALS AND EQUIPMENT

for the Manufacture of Soaps and Sanitary Products

NOTE: This is a classified list of the companies which advertise regularly in SOAP. It will aid you in locating advertisements of raw materials, bulk and private brand products, equipment, packaging materials, etc., in which you are particularly interested. Refer to the Index to Advertisements, on page 118, for page numbers. *"Say you saw it in SOAP."*

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American Cyanamid & Chemical Corp.
Columbia Alkali Co.
Dow Chemical Co.
Hooker Electrochemical Co.
Niagara Alkali Co.
Solvay Sales Corp.
Stauffer Chemical Co.
Jos. Turner & Co.
Warner Chemical Co.
Welch, Holme & Clark Co.

AROMATIC CHEMICALS

Budd Aromatic Chemical Co.
Compagnie Parento
Dodge & Olcott Co.
Dow Chemical Co.
P. R. Dreyer, Inc.
A. C. Drury & Co.
E. I. du Pont de Nemours & Co.
Felton Chemical Co.
Fritzsche Brothers, Inc.
Givaudan-Delawanna, Inc.
Magnus, Mabee & Reynard, Inc.
Monsanto Chemical Co.
Naugatuck Chemical Co.
Newport Chemical Works
Polak's Frutal Works
Solvay Sales Corp.
A. M. Todd Co.
Ungerer & Co.
Van Ameringen-Haebler, Inc.
Albert Verley, Inc.

BULK AND PRIVATE BRAND PRODUCTS

An-Fo Manufacturing Co.
Baird & McGuire, Inc.
Clifton Chemical Co.
Davies-Young Soap Co.
Eagle Soap Corp.
Federal Varnish Co.
Fuld Bros.
Harley Soap Co.
Hysan Products Co.
Hull Co.
Kemiko Mfg. Co.
Koppers Products Co.
Kranich Soap Co.
New York Soap Corp.
Palmer Products
Philadelphia Quartz Co.
John Powell & Co.
Geo. A. Schmidt & Co.
Warren Soap Mfg. Co.
White Tar Co.
Windsor Wax Co.

CHEMICALS

American Cyanamid & Chemical Corp.
Bowker Chemical Co.
Columbia Alkali Co.
Dow Chemical Co.
E. I. du Pont de Nemours & Co.
General Chemical Co.
Grasselli Chemical Co.
Hooker Electrochemical Co.
Industrial Chemical Sales Co.
Mechling Bros. Chemical Co.
Monsanto Chemical Co.
Newport Chemical Works
Niagara Alkali Co.
Philadelphia Quartz Co.
Solvay Sales Corp.
Standard Silicate Co.
Stauffer Chemical Co.
Swann Chemical Co.
Jos. Turner & Co.
Victor Chemical Works
Warner Chemical Co.
Welch, Holme & Clark Co.

COAL TAR RAW MATERIALS

(Cresylic Acid, Tar Acid Oil, etc.)
American Cyanamid & Chemical Corp.
Baird & McGuire, Inc.
Barrett Co.
Koppers Products Co.
Monsanto Chemical Co.
Reilly Tar & Chemical Co.
White Tar Co.

CONTAINERS

Continental Can Co. (Tin Cans)
Garnet Chemical Corp. (Drip Machines)
Maryland Glass Corp. (Bottles)
Metal Package Corp. (Tin Cans)
Owens-Illinois Glass Co. (Bottles)

DEODORIZING BLOCK HOLDERS

Clifton Chemical Co.
Eagle Soap Corp.
Garnet Chemical Corp.
Fuld Bros.
Palmer Products, Inc.

ESSENTIAL OILS

Budd Aromatic Chemical Co.
Compagnie Parento
Dodge & Olcott Co.
P. R. Dreyer Inc.
A. C. Drury & Co.
Fritzsche Brothers, Inc.
Leghorn Trading Co.
Magnus, Mabee & Reynard, Inc.
Polak's Frutal Works
A. M. Todd Co.
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Brooklyn, N. Y.

RAW MATERIAL AND EQUIPMENT GUIDE

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NOTE: This is a classified list of the companies which advertise regularly in SOAP. It will aid you in locating advertisements of raw materials, bulk and private brand products, equipment, packaging materials, etc., in which you are particularly interested. Refer to the Index to Advertisements, on page 118, for page numbers. *"Say you saw it in SOAP."*

MACHINERY

Blanchard Machine Co. (Soap Powder)
Anthony J. Fries (Soap Dies)
R. G. Haskins Co. (Capping Machinery)
Houchin Machinery Co. (Soap Machinery)
Huber Machine Co. (Soap Machinery)
R. A. Jones & Co. (Automatic Soap Presses and Cartoning Machinery)
Proctor & Schwartz (Dryers)
C. G. Sargent's Sons Corp. (Dryers)
Stokes & Smith Co. (Packing Machinery)
Triangle Package Machinery Co. (Packaging Machinery)

MACHINERY, USED

Consolidated Products Co.
Newman Tallow & Soap Machinery Co.
Stein-Brill Co.

METAL CAPS

Anchor Cap & Closure Corp.
Ferdinand Gutmann & Co.

MISCELLANEOUS

Dobbins Mfg. Co. (Pails, Mop Wringers, etc.)
General Naval Stores Co. (Pine Oil-Rosin)
Hercules Powder Co. (Pine Oil and Rosin)
Industrial Chemical Sales Co. (Decol. carbon, Chalk)
Pylam Products Co. (Lathering Agent)
Rohm & Haas Co. (Insecticide Base)

OILS AND FATS

Industrial Chemical Sales Co.
Leghorn Trading Co.
Newman Tallow & Soap Machinery Co.
Theobald Annual By-Products Refinery
Welch, Holme & Clark Co.

PARADICHLORBENZENE

Dow Chemical Co.
E. I. du Pont de Nemours & Co.
Hooker Electrochemical Co.
Monsanto Chemical Co.
Niagara Alkali Co.
Solvay Sales Corp.
Jos. Turner & Co.

PERFUMING COMPOUNDS

Budd Aromatic Chemical Co.
Compagnie Parento
Dodge & Olcott Co.
P. R. Dreyer, Inc.
A. C. Drury & Co.
Felton Chemical Corp.
Fritzsche Brothers, Inc.
Givaudan-Delawanna, Inc.
Magnus, Mabee & Reynard, Inc.
Polak's Frutal Works
Ungerer & Co.
Van Ameringen-Haebler, Inc.
Albert Verley, Inc.

PETROLEUM PRODUCTS

Anderson-Pritchard Oil Corp.
Atlantic Refining Co.
Sherwood Petroleum Co.
L. Sonneborn Sons.

PYRETHRUM AND DERRIS PRODUCTS

Insect Flowers and Powder, Pyrenthrum Extract, Derris Products
An-Fo Mfg. Co. (Extract)
W. Benkert & Co.
McCormick & Co.
McLaughlin, Gormley, King Co.
John Powell & Co.
Sherwood Petroleum Co.
Cyrus Ward & Co.

SOAP COLORS

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Fezandie & Sperrle
Interstate Color Co.
Pylam Products Co.

SOAP DISPENSERS

Clifton Chemical Co.
Eagle Soap Corp.
Fuld Bros.
Garnet Chemical Corp.
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SODIUM SILICATE

American Cyanamid & Chemicals Corp.
General Chemical Co.
Grasselli Chemical Co.
Mechling Bros. Chemical Co.
Philadelphia Quartz Co.
Standard Silicate Co.

SPRAYERS

Breuer Electric Mfg. Co.
Dobbins Mfg. Co.
Hudson Mfg. Co.
Lowell Sprayer Co.

STEEL CONTAINERS

John Trageser Steam Copper Works (Pails and Drums)
Wilson & Bennett Mfg. Co. (Pails and Drums)

TRI SODIUM PHOSPHATE

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Bowker Chemical Co.
General Chemical Co.
Grasselli Chemical Co.
Swann Chemical Co.
Victor Chemical Works
Warner Chemical Co.

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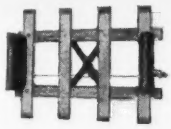

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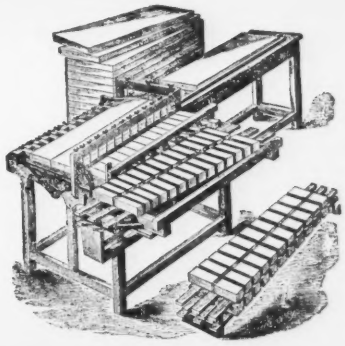

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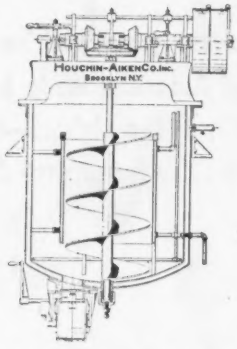
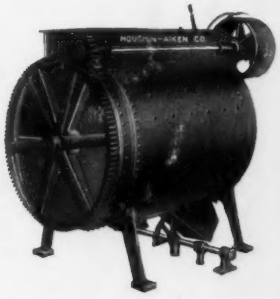


Perfection Crutcher Cross
Section View Plunger
Type Valve



Horizontal Crutcher

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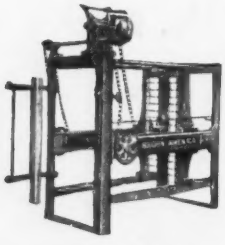
Press

Standard
Soap Frame



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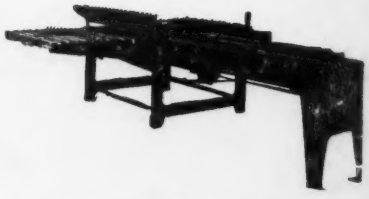

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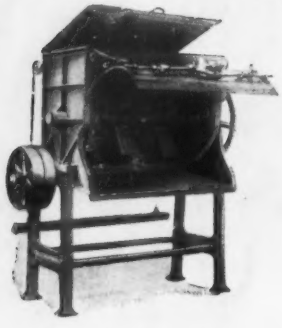

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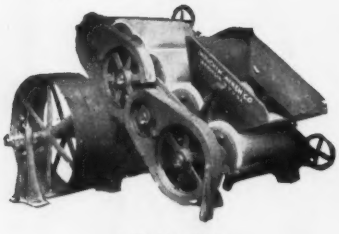

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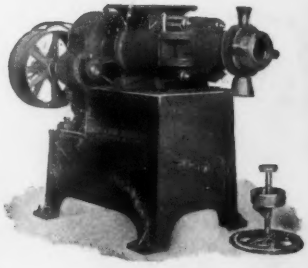

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